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ABSTRACT

This progress report of the Riverside Unified School District comprises a summary of the effect of integration on the achievement of elementary pupils. Little change is considered to have occurred in the achievement of these students following integration. However, the achievement of many minority pupils, it is held, may eventually improve through the cumulative effects of the receiving pupils' home backgrounds and through the influence of favorable classroom atmospheres. It is noted that desegregation must be accompanied by intense efforts to provide instruction which will help compensate for earlier disadvantages. The report also includes a description of a project that emphasizes the areas of physical development of children, their cognitive development, and strengthening of their social identities. The project includes concentrated inservice teacher education in the field of cognitive development according to the theories of Piaget. Appended are papers on comparative data on Raven's Progressive Matrices Test and the Peabody Picture Vocabulary Test and on the effect of integration on the achievement of elementary pupils. (Author/JW)

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RIVERSIDE SCHOOL STUDY

PROGRESS REPORT

March 15, 1969

A STUDY OF DESEGREGATION

In the Public Schools

Riverside, California

A JOINT PROJECT

Riverside Unified School District

and

University of California, Riverside

UD010614

Project No. M8-14

1968-1969

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RIVERSIDE UNIFIED SCHOOL DISTRICT
Riverside, California

DEPARTMENT OF RESEARCH AND EVALUATION
March 28, 1969

PROGRESS REPORT OF THE RIVERSIDE UNIFIED SCHOOLS McATEER M8-14 PROJECT FOR THE QUARTER ENDING MARCH 1969

Mabel C. Purl, Ph.D.

During the past three months, two reports have been completed and are included. They are:

1. A study of comparative data on Raven's Progressive Matrices and the Peabody Picture Vocabulary Test by age, socioeconomic level, sex, and ethnic background.

2. An analysis of the effects of integration on the reading achievement of minority and majority pupils.

Studies which will continue are:

1. A longitudinal analysis of first, second, and third grade reading achievement and intelligence test performance by socioeconomic level, sex, ethnic background, and length of integration.

2. An extension of the study of social acceptance and academic behavior of desegregated minority children to include more recent achievement and sociometric data and to include data for older children.

3. A study of correlations between scores on Raven's Progressive Matrices and on other intelligence tests.

4. An analysis of the "buzz sessions" held by teachers, by principals, by observers, and by interviewers. Their comments and observations on integration will form the basis of a handbook for school districts planning integration.

Data have been requested for additional studies on:

1. Grouping patterns of minority pupils within integrated classrooms.

2. The relationship between curriculum and discipline problems and the teacher's experience with integration.

RIVERSIDE UNIFIED SCHOOL DISTRICT
Riverside, California

DEPARTMENT OF RESEARCH AND EVALUATION
March, 1969

SUMMARY OF THE EFFECT OF INTEGRATION ON THE ACHIEVEMENT OF ELEMENTARY PUPILS

Progress Report of McAteer Project M8-14

During two years of desegregation, what progress has been made toward meeting the goal of improving the academic achievement of minority pupils without adversely affecting the achievement of majority pupils? The answer of one year ago, "Not much," is still appropriate.

"Achievement," as used in this context, is the performance of kindergarten pupils on the Metropolitan Readiness Tests and the performance of first, second, third and sixth grade pupils on the Stanford Total Reading Tests. The latest data included are from tests administered to primary grade pupils in May 1968 and to sixth grade pupils in October 1968. The length of desegregated education experienced by these pupils ranged from one to three years; more of them had experienced two years than either one or three years.

Data were compiled for four groups of pupils for 1966, 1967, and 1968: integrated pupils, receiving pupils, pupils at nonreceiving schools, and district-wide pupils. At the kindergarten and first grade levels, few changes occurred among any of the major groups; the few changes which did occur were slight increases. At the second, third, and sixth grade levels, slight decreases were evident among most groups of students. As the decreases were not restricted to integrated and receiving pupils, they have not been attributed to school desegregation.

One of the most interesting findings in this analysis resulted from observation of the scope of the differences in the average test performance of both integrated and receiving pupils attending different schools. Significant correlations were found between the average test scores of integrated and receiving pupils in kindergarten and in the first three grades. This is consistent with the results of the U. S. Office of Education survey on the equality of educational opportunity. One of the findings of that survey was that ". . . the social composition of the student body is more highly related to achievement, independently of the student's own social background, than is any school factor."

Research by Irwin Katz indicates that desegregation may have either favorable or unfavorable effects on the achievement of minority pupils; the social acceptance of the pupils determines which effects prevail. Rosenthal and Jacobson conducted research which suggests that increased expectations of teachers may advantageously influence academic performance.

The achievement of many minority pupils may eventually improve through the cumulative effects of the receiving pupils' home backgrounds and through the influence of favorable classroom atmospheres; some pupils, however, will not experience these favorable influences and the effects on those who do will probably not be great enough to close the gap between the average achievement of integrated and receiving pupils. Desegregation must be accompanied by intense efforts to provide instruction which will help compensate for earlier disadvantages.

RIVERSIDE UNIFIED SCHOOL DISTRICT
Riverside, California

DEPARTMENT OF RESEARCH AND EVALUATION
March, 1969

EMERSON SCHOOL PROJECT
McATEER PROJECT M8-14

Progress Report for the Second Quarter, 1968-69

Submitted by:

MABEL C. PURL, Ph.D.
Director
Research and Evaluation

E. RAY BERRY
Superintendent

INTRODUCTION

The Emerson School Project of the UCR-Riverside Schools Integration Study continues to emphasize the three areas of physical development of children, their cognitive development, and the development and strengthening of their social identities.

The work this year includes concentrated in-service teacher education in the field of cognitive development according to the theories of Piaget. Dr. Jerry Carlson, Educational Psychologist, and Associate Professor, University of California, Riverside, works regularly with the Emerson staff as he continues the investigations described in the previous Progress Report. In addition, a major objective of the project for this year is the collection and publication of curriculum materials which have been developed using the theoretical framework of Piaget with the substantive Third Culture approach.

The following reports present summaries of the activities to date.

EMERSON SCHOOL RESEARCH IN COGNITIVE DEVELOPMENT

Prepared by: Jerry Carlson, Ph.D.

The work that has been going on at Emerson School is a continuation of what was started at the beginning of the 1968-69 school year with one modification: more attention has been given to aspects of in-service teacher education. The information obtained from the data collection at the beginning of the year was made available to each of the teachers involved. This provided them with a broader and, perhaps, more veridical perspective and understanding than they previously had with respect to the levels of cognitive development of the children in their classrooms. This, plus fairly extensive reading, weekly group discussions, and systematic classroom observation with subsequent feedback has provided a basis for rethinking teaching methodology and certain aspects of the present curriculum.

The articles and books which were provided for the teachers are listed separately (Appendix I). The purpose of the readings was to lay the bases for a basic theoretical understanding of children's thinking from which we could proceed to rather specific and concrete aspects of curriculum and methodology.

Subjective evaluation of this part of the project suggests that the approach used encountered two, not independent, difficulties: the level of difficulty of the readings, and the time which the teachers had to put in on reading the materials. With these difficulties in mind, it was decided to place emphasis on an "inductive" approach which stressed the individual classroom visits, discussion of the visits and how the children's classroom behaviors and achievement were related to their levels of cognitive development; and how a better "match" could be made between this development, the curriculum and teaching methodology.

This approach seems to be very fruitful and will be continued.

In addition, the present research study will be expanded to include the investigations proposed below.

The proposed study comes primarily out of the work of Piaget[1], Piaget and Inhelder[2], and Aebli[3]. The notion of the development of socialized, as opposed to egocentric, thought is of significance to Piaget's conception of cognitive development; it marks a level of development where absolute judgment is replaced by relative judgment. That is, where there is simultaneous awareness of at least two points of view or perspectives. Illustrative of this, Piaget writes:

> ". . . the capacity for objectivity depends in its turn upon the socialization of thought, since we have no other criterion of objectivity than the agreement of different minds. If our thinking remains shut up within the ego, it cannot place itself at the point of view of others, disparity between objective and subjective will be through this alone seriously endangered" (J & R, pp. 245-246).

The purpose of the study is to test various methodological procedures designed to "hurry up" the process of desubjectification or socialization of thought. The techniques to be used stem from theoretical considerations as well as empirical findings.

It is hoped that the general procedures to be used will have special relevance to teaching methodology; the usual experimental conditions of a one to one, experimenter-subject, situation have been eschewed for the more usable and functionally practicable small group situation. Furthermore, the experimental techniques to be used can be applied by the teacher in other situations and thus go beyond the particular and rather specific thrust of this study.

The following study, designed to test the effects of various small group training procedures on the development of socialized thought, is proposed to be carried out at Emerson School in the spring of 1969.

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[1] Piaget, J. Judgement and Reasoning. Patterson, N.J.: Littlefield, Adams & Co., 1964.

[2] Piaget, J. & Inhelder, Bärbel. The Child's Conception of Space. London: Routledge and Kegan Paul, 1956.

[3] Aebli, H. Über die geistige Entwicklung des Kindes. Stuttgart: Ernst Klett Verlag, 1963.

Subjects

The first sixty children who fail all items on a two item pretest will be put into the study. It is assumed that most of the sixty children will be from the second and third grades. The children who will be participating will be randomly assigned to five experimental groups plus one control group. Each group will have ten children in it.

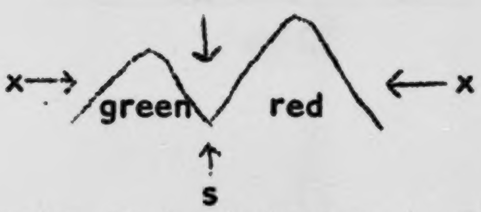
Pretest

A two item, four part, pretest will be administered to second and third grade children (first graders too, if necessary). The first sixty children who fail on all four parts of the pretest will be included in the study; those who pass one or more of the items will not be included. All children will be tested individually.

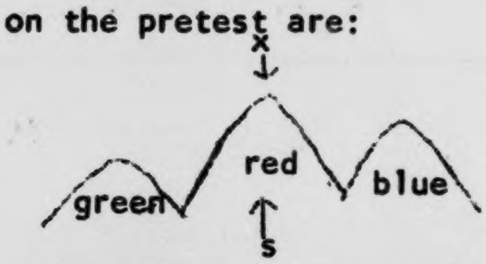
Each child will be asked to model, using Playdoe, the following mountain arrangements from the various positions marked "x." The child will have only one view but a dwarf will be put in each of the "x" perspectives. The child will be asked to make the mountains exactly as the dwarf sees them from where he (the dwarf) is.

The mountain arrangements to be used on the pretest are:

(1)



(2)



In order to be judged to be correct on any part of the tasks, the child will not only be required to place the mountains in the proper order, but he must also have the relative heights the same as they would be from the asked for perspective.

Experimental Groups

1. Experimental group 1 - The training will consist of modeling the mountains (described later). No discussion before or after the drawings are made will take place. Furthermore, no comparisons of the models made with what it is "really like" on the other side will be done. This gives: (1) practice, (2) no feedback, (3) no praise, (4) no cognitive conflict, (5) no guiding questions or cues (organizers), (6) no explanation.

2. Experimental group 2 - The training procedures are to model

the mountains. After each task is completed, the children will compare their models with what it is "really like" on the other side. The children will then go on to the next task and repeat the procedure for all tasks. This gives: (1) practice, (2) nonverbal feedback, (3) nonverbal cognitive conflict (arises from the feedback situation in which the prediction is not confirmed), (4) no praise, (5) no guiding questions, (6) no explanation.

3. Experimental group 3 - The children will model the mountains. After each model is completed, they will discuss it before going on to the next task. The children will not see what it is like on the other side. This gives: (1) practice, (2) guiding questions (organizers), (3) verbal feedback, (4) a modified form of verbal cognitive conflict, (5) no praise, (6) partial explanation.

4. Experimental group 4 - Prior to each of the modelings, verbal interaction will occur. This will be followed by the actual modeling of the mountains and then comparison of what it is "really like" on the other side. This gives: (1) practice, (2) guiding organizers for the task to come, (3) nonverbal feedback, (4) nonverbal congnitive conflict, (5) no praise, (6) partial explanation.

5. Experimental group 5 - Before each model is made, the children will discuss the model to be made. After the models are made, visual comparisons of what it is like from the dwarf's perspective and verbal interaction will follow: This gives: (1) practice, (2) verbal and nonverbal feedback, (3) organizers, (4) no praise, (5) explanation.

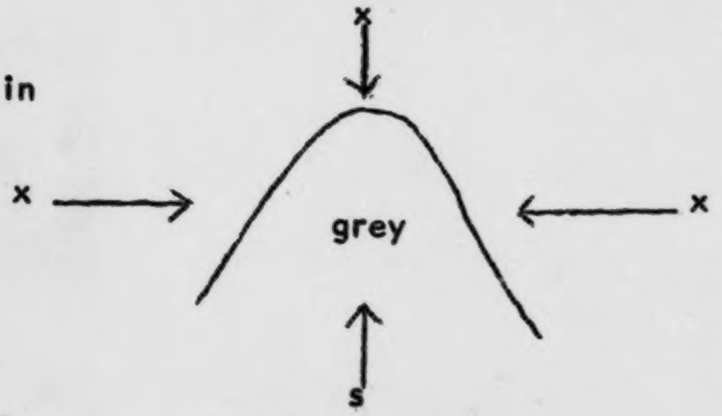
Control Group

A control group, consisting of ten children, will receive the pretest and the posttests. Irrelevant training, consisting of modeling figures in clay, will be given.

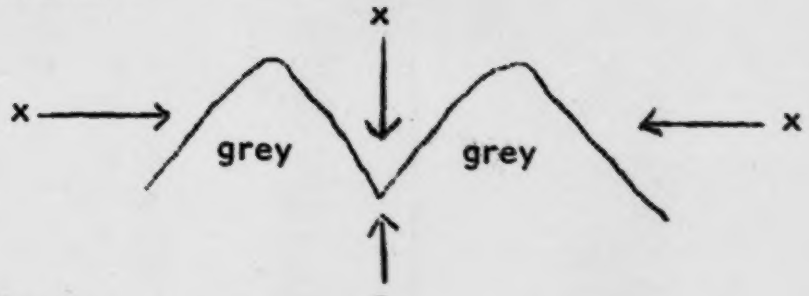
Training Sessions and Materials

The following mountain arrangements will be used, one per training session for the total of five sessions.

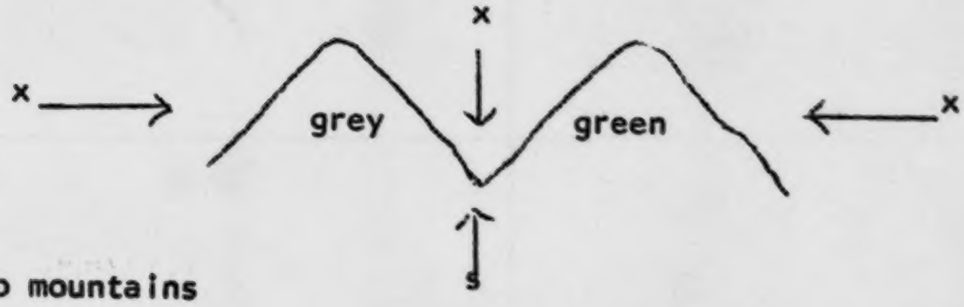
1. One mountain



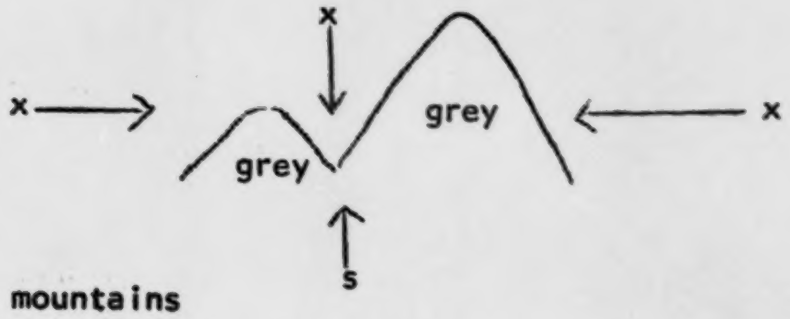
2. Two mountains



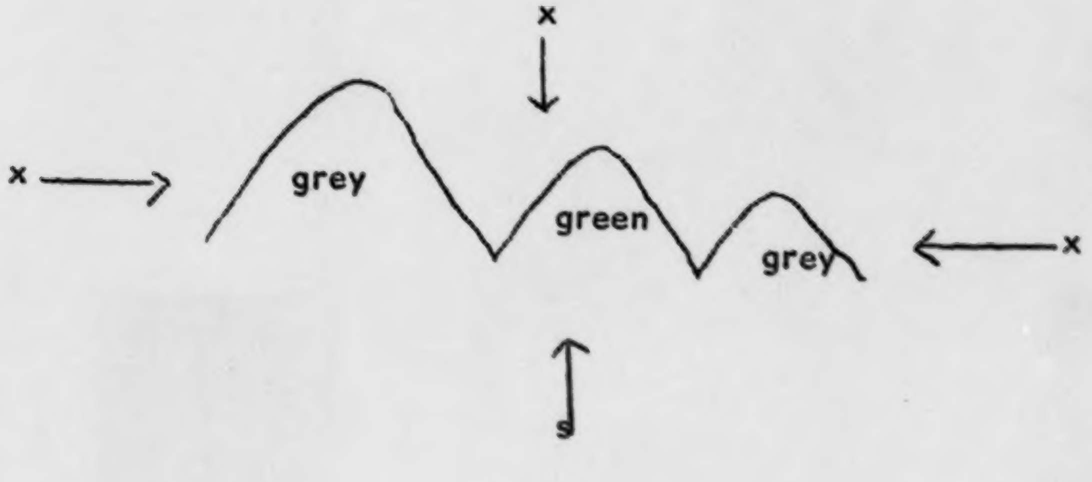
3. Two mountains



4. Two mountains



5. Three mountains



The children will view the mountains from the "s" position. They will be asked to model the mountains from the "x" positions. For this purpose, a little dwarf will be used and the children will be told that they are to pretend that they are the dwarf and to model the mountains exactly as the dwarf views them from his position. The children's models will progress in a clock-wise progression.

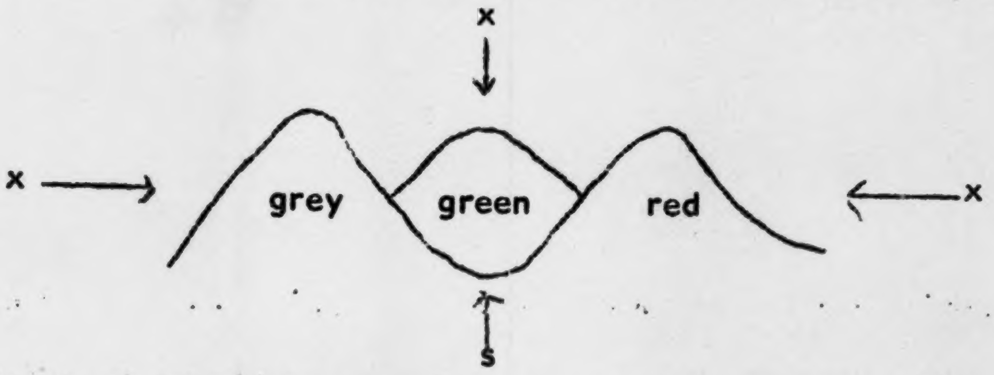
The training sessions will consist of one exercise per session. The sessions will be every other day. That is, each child in the study will be involved in five sessions over a ten day period. At the end of the first training session, the sessions will be repeated, one per day, over a five day period. This will be done to "consolidate" the previous learning.

Posttests

At the end of the entire training period, the first posttest will be given. Approximately one month later the second posttest, identical to the first, will be administered. The criterion measure shall consist of two parts: A "pick the appropriate picture" part, and a modeling part.

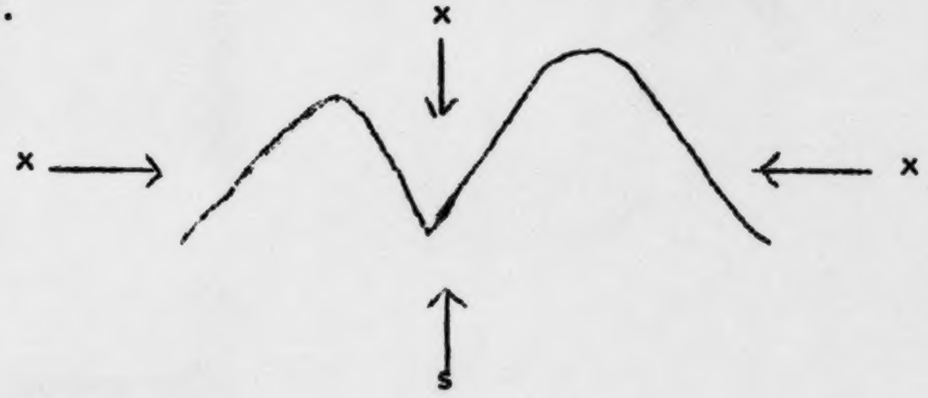
The items to be used in the posttest are as follows:

1. Match the pictures to how the dwarf sees the mountains.

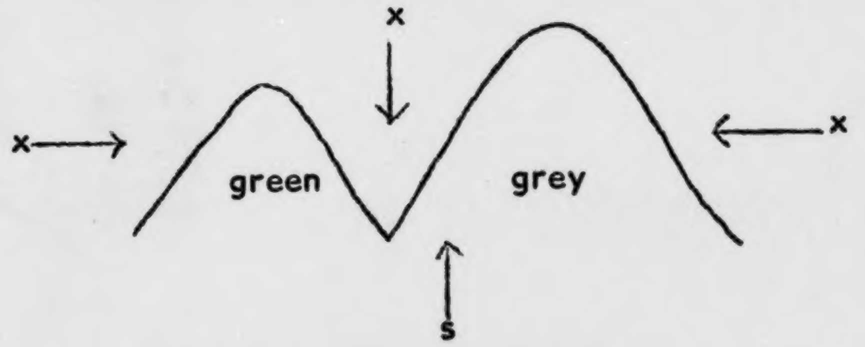


2, Model the following mountains as the dwarf views them.

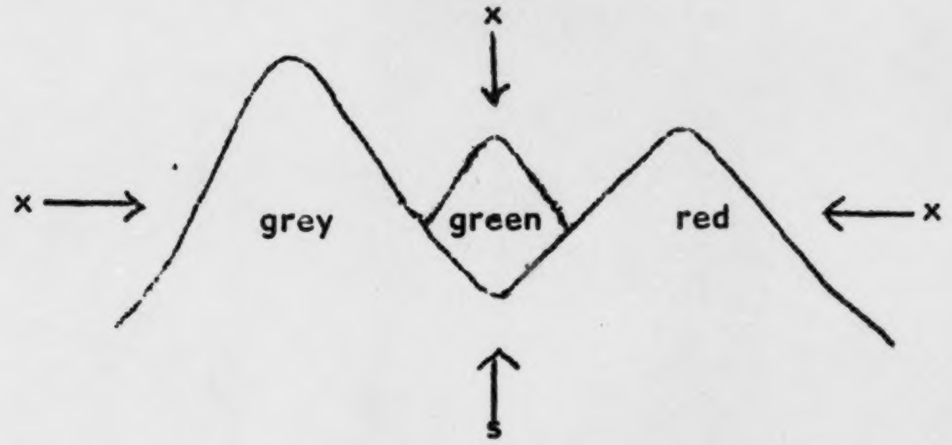
A.



B.



C.



Scoring

The responses will be scored on two bases: the correct orientation of the mountains themselves, and the correct relational size. One point each will be given to each of these. Or, a total of six points can be obtained from any one of the posttest items: there are three responses and two levels of each response. (This is the scoring procedure for the part of the posttest which requires models to be made.)

For the simple matching of the appropriate pictures to the dwarf's perspective, one point will be given for each correct match. Or, a total of three points is possible.

The data will be analyzed by nonparametric techniques.

APPENDIX I

READINGS

Bruner, J. "Growth of Mind." New York Times, Book Review Section, 1968.

Carlson, J. "Developmental Psychology and Its Implications for Science Education." Science Education, 1967, 51, 246-250.

Carlson, J. "Elementary Curriculum and the Verbal Mediation Model: Some Psychological Considerations." California Journal for Instructional Improvement, 1968, 11, 153-160.

Piaget, J. Judgement and Reasoning in the Child. Patterson, N.J.: Littlefield, Adams, 1964.

Piaget, J. Psychology of Intelligence. Patterson, N.J.: Littlefield, Adams, 1966.

Piaget, J. Six Psychological Studies. New York: Random House, 1967.

Siegel, I. "The Piagetian System and the World of Education." In D. Elkind and J. Flavell (eds.), Studies in Cognitive Development: Essays in Honor of Jean Piaget. New York: Oxford University Press, 1969.

EMERSON SCHOOL CURRICULUM DEVELOPMENT

Prepared by: Marilyn Groven

A Third Culture approach is a study of a culture which the students have never personally experienced, but with which they can find some emotional and intellectual response without feeling personally threatened, intimidated or alienated. A heterogeneous classroom is particularly suitable for a Third Culture approach because the variety of experiences, (racial, educational, social) opens up a wider range or response and interpretation among the students.

Emerson Elementary School draws from a very heterogeneous community. Twenty-five per cent of the families are in the poverty zone economically as well as "culturally." The majority of these children are Negro. Another twenty-five per cent of the community served by Emerson are lower middle income and reflect a corresponding cultural and educational response to school discipline. The remaining fifty per cent of the community is economically in the middle and upper income and reflect, here too, the belief that educational advancement for their children is a key to later economic security. The racial distribution at Emerson is roughly fifty per cent Negro and fifty per cent Anglo-American. There are few Mexican-American children at the school.

With such a school population the assumption is that the Third Culture Program will stimulate the students to reflect on the kind of society they live in and with their various social experiences interpret more sympathetically not only the culture they are studying but their own as well. The Third Culture Program is studied not only for the intrinsic value of learning about another society in human terms; hopefully, the children (even the youngest) will come to see that differences among human beings should not be the cause for fear, scorn or rejection.

The Program

The year began with an animal unit. The aim of studying animals is to teach the children to classify the animal kingdom and to find man's place in it. What does man have in common with other animals? In what respects is man different from other animals: Each lesson used cut and paste exercises to classify animals. The standard zoological phylogenetic system was used.

The unit started with a discussion of what is alive and what is not alive. This led to what plants and animals have in common and what the differences are. Next there followed an analysis of vertebrates and invertebrates. Each room selected a vertebrate to study other than mammals.

Then a detailed study of mammals and their characteristics followed. This study was based on a comparison between mammals and the particular non-mammalian vertebrate the class had previously studied.

The culmination of the unit (in its biological setting) was an investigation of the similarities and differences between man as a mammal and non-human mammals. Many films were shown of animal life; animals were directly observed in the classroom.

Kindergarten, first and second grades studied baboons. Materials from Man, A Course of Study was used (Appendix II). Films and appropriate exercises for the children's level were used.

A third grade class studied the herring gull. Again, Man, A Course of Study was the primary source.

Superimposed on this animal unit was a study of animals by continent and environment. Thus the biology of mammals was extended to their ecology.

All primary classes took a trip to the Los Angeles Zoo. Every child classified animals and took notes in a booklet that had been prepared to tie the material together. Many parents went with the children. The parents attended a study group before the trip in order to familiarize themselves with what had gone on in the classrooms. There was an intentional integration of white and black parents. The number of parents plus teachers made it possible for the children to receive individual attention.

This trip was followed by classroom work and by a "traveling" bulletin board which was taken from class to class. The display contained a world map plus postcard pictures of many of the animals seen at the zoo. The children placed the animals in their environments and the appropriate continent.

A television program was prepared and filmed at Channel 42 in Palm Springs in cooperation with SPEIR at the country school level. The program was shown locally over Channel 5 (KTLA), and received from many parents a favorable response. The program was comprised of a classroom demonstration by Emerson first graders of how the animal unit was taught and an explanation of the way in which such a unit would lead into the Third Culture Program.

Emerson School was selected as an example of curriculum innovation in the public schools.

From Ecology to Third Culture

> "It is our belief that when an understanding of ways of life very different from one's own is gained, abstractions and generalizations about social structure, cultural values, subsistence techniques, and other universal categories of human social behavior become meaningful."[1]

A general third culture outline was presented to the teachers. Concepts to be stressed and how these were to be achieved were discussed. Each grade level had the option of selecting what culture they wanted to study. Resource materials of an anthropological nature were assembled.

The Netsilik Eskimos were selected by the kindergarten sections. They have seen numerous films and visual realia. The children are making dioramas showing the Eskimo life cycle changes with the seasons. The dioramas show the difficulty of the environment and how the Eskimo adapts to this harsh existence. For example, there is a scene, made by the children, showing how the seal was hunted and used for survival. Thus there was a correlation between animal ecology and human adaptation as a means of getting children interested in the subject and understanding the problems of Eskimo survival. For the kindergarten child, pictures of Alaskan animals with number-color exercises were used so that the child would learn basic number and color concepts and identifications. Several tactile charts showing Alaskan animals were used. Pieces of the animal fur were attached to the chart. The children were encouraged to touch and to observe the animals and thereby to get inside the Eskimo environment as much as the artificial classroom permitted.

Eskimo artifacts borrowed from the local museum were brought into the classes.

One first grade class chose ancient Greece. By the end of this year they will have studied in detail the island of Mykonos and modern Greece. Ancient myths were read to the children. Greek spelling was shown to the students and Greek pronunciation of names used. Films and artifacts were brought to class. Emphasis was also placed on art forms, architecture, paintings on vases, etc. adapted to the children's interest.

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[1] Spindler, George and Louise. Introduction to Case Studies in Anthropology. Stanford.

A "paper" mural is being painted by the students of their vision of ancient Greece in the various guises they have studied it. The unit will end with a paper mache map of Greece with an overhanging sky and a brief study of astronomy. During the course of study, number concepts and reading vocabulary were drawn from the Third Culture material.

The two ungraded primary classes chose the Cheyenne Indians as their third culture. The time period is from the introduction of the horse by the Spaniards to their decimation by the white man.

Tales of the Cheyennes as collected by the expert authority George Grinnell were read to the children. Booklets of these stories were prepared and used in reading classes. The local museum provided Indian artifacts. The children made and beaded replicas of Cheyenne shirts.

Booklets on the Plains Indians are now being used. These booklets emphasize the life style and environment of the Cheyenne; the importance of the buffalo; family structure and social values. The children are now preparing a mural of Cheyenne life.

A second grade, a second-third combination, a third grade, are studying Gopalpur, a small village in India. The book Gopalpur by Alan Beals, currently teaching at the University of California at Riverside, is the basic source of reference. He has made available his colored slides, black and white photographs, and tapes which he assembled from a fourteen month field study of the village.

Films from the Consulate of India will be shown throughout the year. Booklets of ancient Indian myths and tales have been assembled for reading classes (e.g., Marriage of Rama and Sita; Shakuntala, life of an Indian girl; Chandra, life of an Indian boy). The children visited the University of California at Riverside during India Week to see the display put together by Indian students. A large number of third graders attended the Indian dinner.

Each room is making a mural of life in Gopalpur and "Life along the Ganges." Some of the children are making minature kitchens from paper modeled from one they saw at the India Week display. Others have prepared Indian food at school and at home.

The traveling bulletin board continues to make the rounds. One display centered on how environment and culture determine the physical construction and style of houses around the world. Children are asked to make a comparison from their own experience and knowledge with what they see on the display.

Folksingers Keith and Rusty McNeil work with each classroom. They have used many kinds of instruments--including guitar, banjo, mandolin, harmonica, drums, an African thumb piano, plus rhythm instruments and string instruments from India, Africa, Europe, North and South America, and Asia. Once a month all the children are brought for a "Hootenanny." Contributions of various cultures to music are stressed. Songs from the particular culture they are studying in the Social Studies program are taught.

Once a week Jean Stone, an Orff-Schulwerk teacher, works with all the children in rhythm and dance. She takes half a class at a time so each child has a chance for creative involvement. Orff instruments are used and include the bass, alto and soprano marimba, alto and soprano resonator chimes, and drums and rhythm instruments. The children basically are encouraged to create their own arrangements; however, appropriate third culture materials are given to the Orff-Schulwerk teacher for use.

The Christmas program consisted of music learned from the NcNeils with a short tableaux from an Orff group. The spring festival will focus on the Orff techniques.

The various curriculum materials and realia that have been prepared will be assembled at the end of the year and included in the final report.

There has been enthusiastic response from the children and the parents for the program. At a recent parent meeting parents expressed the hope that their children continue to find out about other cultures. With knowledge, hopefully will come understanding and acceptance.

APPENDIX II

RIVERSIDE UNIFIED SCHOOL DISTRICT

MAN: A COURSE OF STUDY

(A Pilot Social Studies Program for
4th, 5th, and 6th grades at Emerson
and 6th grade at Longfellow School)

The Study

Developed from Jerome Bruner's original work, the study was used by the Educational Development Center (umbrella organization for E.S.I. and other labs) to combine the salmon, herring gull, baboon, and Netsilik Eskimo into a continuous unfolding of concepts from which children would gradually develop an understanding of our uniqueness as well as our similarities with other animals.

Beginning with the salmon, the children acquire a way of looking at living things which enable them to see how structural and behavioral adaptations serve as a function of survival. Such interrelationship as the number of eggs laid, the perils of the early months of life, the body structure, the constraints of an aquatic habitat, and the complexities of instinctive behavior will help children explore the morphology and behavioral adaptation of the salmon.

The herring gull would bring the children's thinking to another level of survival strategies. The incubation urges and feeding responses of the herring gull are contrasted, for example, with the lack of parental protection and dependency in the salmon.

The baboon's survival expressed itself in more specialized adaptive behavior. Ecologically a balance of symbiotic relationships developed with the predator-ridden life of the African savanna became the baboon's. A remarkable degree of social stratification also developed within the baboon troop from the new born infant to the three or four dominant males. Survival depended upon a complex set of internal relationships. Twenty-two distinct vocalizations as well as an impressive catalogue of gestures and body motions revealed the beginnings of communication as well.

Finally the Netsilik Eskimo was selected to reveal Bruner's five distinctively humanizing forces (tool making, language, social organization, management of a prolonged childhood, and the urge to explain). A three-fold analysis of human culture (ecological adaptation, social structure, and man's unrelenting search for order in his world) was viewed in perhaps the harshest environment to which man has attempted to adapt.

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Materials from Barbara Mayer, in care of Education Development Center,
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CONTENT, MAN A COURSE OF STUDY

CONCEPTS[1]

1. What are the physical and biological characteristics of Man?

    A. Recognition that the welter of familiar things admits of some ordering into categories.

    B. Child's recognition of himself as a member of a large class, mammals.

        (1) To recognize selected characteristics of one class of animals from another.

        (2) To recognize certain animal needs parallel human needs.

        (3) To recognize the brief infancy of animals in contrast to the long infancy of humans.

2. What is the idea of communication?

    A. Humans communicate through the naming of classes of things.

    B. Observation of animal vocal and non-verbal communication.

    C. Non-verbal human communication.

3. Influences of environment are important.

    A. How does environment influence the distribution of animals throughout the world?

    B. Why is man able to live almost anywhere throughout the world?

4. How are communities important?

    A. The child has a role to play, what is it?

    B. Roles are named classes and each child takes part in many classes.

    C. Rules are man-made, tools for living which can be altered.

---

[1] Gearing, Fred. Emerson Experiment: 'Desegration to Integration'.

D. Focus on a third culture finding out among other things

(1) Divisions of labor

(2) Divisions of authority

(3) Relation of the above to the family, the neighborhood, and the equivalent of school (these are the experiences our children bring to school with them). (self-recognition)

5. Recognition of the wide diversity of humankind (things are done differently all over the world).

****

THE INQUIRY PROCESS SHOULD BE OUR METHOD OF INSTRUCTION

1. The child observes, classifies, communicates, looks inside himself and compares.

THE DESIRED END IS A SELF-AWARENESS, THE DEVELOPMENT OF HIS IDENTITY.

2. Inquiry Process

A. Observation and classification (we observe to classify).

B. Communication (we communicate to get the results of our classifying from one to another).

C. Comparison (each child continually compares his own experiences to his new ones).

D. Introspection (he must understand he is a son before he understands the Indian child he is reading about is also a son).

E. Self-recognition (I can inquire, I am a mammal, I am one kind of human, I am a member of a classroom).

GENERAL THIRD CULTURE OUTLINE

We want to study a third culture on its own terms, not ours. This can be done by paying particular attention to how and why children in a third culture develop a sense of community, family identity, social responsibility, and individual values. The ultimate end is that our children will assume some sense of their own identity by sympathetic identification and comparison with children of a different culture. What particular features of a third culture do we want for our purposes to focus on.

To bridge our world of complex technological organization and a third culture which tends not to be so highly organized, however culturally complex and diverse, the following would be useful:

(1) In what way is there a division of labor in the culture and what is a child's role in such a system?

(2) How and why is authority divided, who is responsible for establishing law, and how is law and custom changed? What is the child's relation to this division of authority?

(3) What is the function of the family in providing a structure of stability or instability in the society at large and particularly, how does the family create and enforce social and personal values upon the children?

It would be especially useful to emphasize the relative role of the mother and father as authority figures and their roles in the division of labor and authority in their culture generally.

> "What is the child's function in the family, the neighborhood, and in the equivalent of school? (This is what our children can identify with). We want our children to discover that rules are man-made, tools for living which can be altered."[1]

To see how the problems of work, authority, and family relate to form personal and social values, the following general outline may be used for any third culture:

I. What are the hardships and bounty created by the geography on the people?

   A. What is the organization of the family and their greater associations to meet physical hardships or procure the benefits of the environment?

---

[1] Gearing

   - B. What work and play values are imposed by the geography?
   - C. How is the tendency towards cooperation or competition fostered by the physical environment?

II. What is the role of violence in the culture?

   - A. What part does violence play in meeting the demands for food?
   - B. What part does it play in meeting the demands of competition for territory?
   - C. Need for "sport."
   - D. Evidence of valor and manhood.

III. What is the role of organized worship and ritual ceremonies?

   - A. What part does religion play in developing a child's image?
   - B. What function does religion and ritual ceremonies take in the work, play, and authority aspects of the culture?
   - C. In A and B, what are the roles of the child, his family, and other adults?

IV. How does the need to keep alive influence the culture?

   - A. What is the function of the family in survival?
   - B. How does the division of labor, competition, and cooperation function to carry out this need?
   - C. Who is responsible for whom?

V. How are the laws made (formal and informal--ways of doing things) and what form does enforcement take?

   - A. What are the functions of the family (parent roles)?
   - B. Who works--when, where, and how and who decides?
   - C. When do the people in the culture play and when do they study? Who decides?
   - D. What laws are needed and who formulates them?
   - E. When laws need or needed to be changed how is this accomplished?

VI. How does a child grow up?

  A. When and why at a particular age is he recognized as an adult? What part does the family play? What are the circumstances of economic necessity?

  B. What are the standards of adulthood?

  C. What part does the equivalent of school play?

Marilyn Groven
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PROGRESS REPORT

March 15, 1969

Second Quarter Report on Achievement Phase of Riverside School Study

Harry Singer

The Computer program has been revised for the IBM 360 computer now on campus. Also, achievement data for the third year of the study will be ready this week. During this quarter, we will, therefore, be able to do a three-year longitudinal analysis of the achievement data and test the hypotheses we had originally formulated for the study. These hypotheses have been stated in each of our annual reports.

At the last meeting of the executive committee, I reported that I had received an Experienced Teacher Fellowship Grant, under the Educational Personnel Development Act, U.S. Office of Education, for a pilot project to train 12 experienced teachers to become "Reading Content Specialists for the Junior High School". During the first year of the program, the experienced teachers will work towards an M.A. degree. In the second year of the program, they will serve as classroom teachers in two Riverside, and in two San Bernardino junior high schools.

For the project, I will draw upon the data available in our data bank this spring and summer. These data will be included in our training program this fall and will be used as a baseline for evaluating the effectiveness of the program. Essentially the evaluation will determine whether classroom teachers trained in teaching reading in the content areas of the junior high school can improve the performance of students with reading difficulties. Children in the sample are currently in the fifth and sixth grades. In the second year of this program, they will be in the seventh and eighth grades. Riverside School Study data on these children will be compared with data obtained through the concentrated teaching program. The aim of the program is to (a) diminish the discrepancies and to (b) enhance the average reading achievement among the three ethnic groups (Anglo, Mexican-American, and Negro).

Attached is a copy of the proposal. Only five out of 55 fellowship programs submitted to the U.S.O.E. this year were funded. Ours was the only funded for two years. Among the factors in the award was the presence of the longitudinal Riverside School Study, the commitment of the Riverside and San Bernardino Unified School Districts, the close working relationships between the University and these school districts, an inter-disciplinary approach at UCR to the preparation of teachers, and the need for preparing reading content specialists for the junior high schools.

APPENDIX A

The Effect of Integration
on
The Achievement of Elementary Pupils

Mabel C. Purl

RIVERSIDE UNIFIED SCHOOL DISTRICT
Riverside, California

DEPARTMENT OF RESEARCH AND EVALUATION
March, 1969

THE EFFECT OF INTEGRATION ON THE ACHIEVEMENT OF ELEMENTARY PUPILS

Progress Report of McAteer Project M8-14

Submitted by:

MABEL C. PURL, Ph.D.
Director
Research and Evaluation

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Superintendent

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THE EFFECTS OF INTEGRATION ON THE ACHIEVEMENT OF ELEMENTARY PUPILS

Introduction and Brief Summary

A primary goal of school desegregation is improving the academic achievement of minority pupils without adversely affecting the achievement of majority pupils. What has actually been the effect of two years of desegregated educational experience? The answer of one year ago, "Not much," is still appropriate.

A program to eliminate de facto segregation was adopted by the Board of Education of the Riverside Unified School District in the fall of 1965. Desegregation was accomplished by closing three schools at which the student bodies were composed almost exclusively of Mexican-American and Negro pupils and busing the children to schools of predominantly Anglo-American neighborhoods. The program began in the fall of 1965 and the last of the pupils from the three schools were desegregated in the fall of 1967. The schedule for implementing desegregation is shown in Table 1, below.

TABLE 1

DESEGREGATION TIME PLAN

Date	School	Grades Desegregated
Fall, 1965	Lowell Irving	Kdg., 1st, 2nd, 3rd Kdg.
Fall, 1966	Lowell Irving Casa Blanca	4th, 5th, 6th 1st, 2nd, 3rd, 4th, 5th, 6th Approximately one-half of all pupils, Kdg. through 6th
Fall, 1967	Casa Blanca	Remainder of pupils

The effects of integration on the adjustment and achievement of minority and majority pupils are the foci of The Riverside School Study, a research project conducted by the University of California, Riverside, and the Riverside Unified School District. Although many variables in addition to achievement will be analyzed, this report will include achievement data only.

"Achievement," as used in this context, is the performance of kindergarten pupils on the Metropolitan Readiness Tests and the performance of first, second, third, and sixth grade pupils on the Stanford Total Reading Tests. As fourth and fifth grade students were given a different series of tests, which are not comparable to the Stanford tests, they were not included in this analysis.

This has been considered a "progress report" of the effects on achievement of two years of desegregation. However, the length of time in attendance at desegregated schools when the most recent tests were administered varied from one to three years. The amount of segregated and integrated education experienced by the three groups of pupils at the end of each of the last three school years is shown in Figure 1.

Standardized tests are administered to pupils in kindergarten through the third grade each spring; they are administered to sixth grade pupils in the fall. To equalize the number of years of desegregation experienced by the majority of pupils at all grade levels when the most recent tests reported here were administered, spring 1968 (school year 1967-1968) data for primary pupils and fall 1968 (school year (1968-1969) data for sixth grade pupils have been included. Thus, at the time of the most recent tests included in this report, most of the primary grade pupils were nearing the end of their second year of desegregation while the largest group of sixth grade pupils was beginning their third year.

Average test scores for the last three school years are presented in Table 2. In addition to the two groups included throughout this report, integrated and receiving pupils, data are presented for all pupils in the district and for pupils at eight schools which did not receive additional minority pupils as the result of integration. Integrated pupils are minority group pupils from the Casa Blanca, Irving, and Lowell neighborhoods who are bused to other schools. Receiving pupils include all pupils other than those designated as integrated pupils who attend the twelve schools to which the integrated pupils are bused.

With the exception of grades two and three, the mean raw scores in Table 2 can be compared only within each grade level as varying levels of the tests are administered to different grades. The test publisher's interpretation of the letter ratings provided for the Metropolitan Readiness Test scores is given in Table 3. The grade equivalents shown for the average raw scores on the Stanford Total Reading Tests permit comparisons across grade levels. They represent the actual grade placement of the

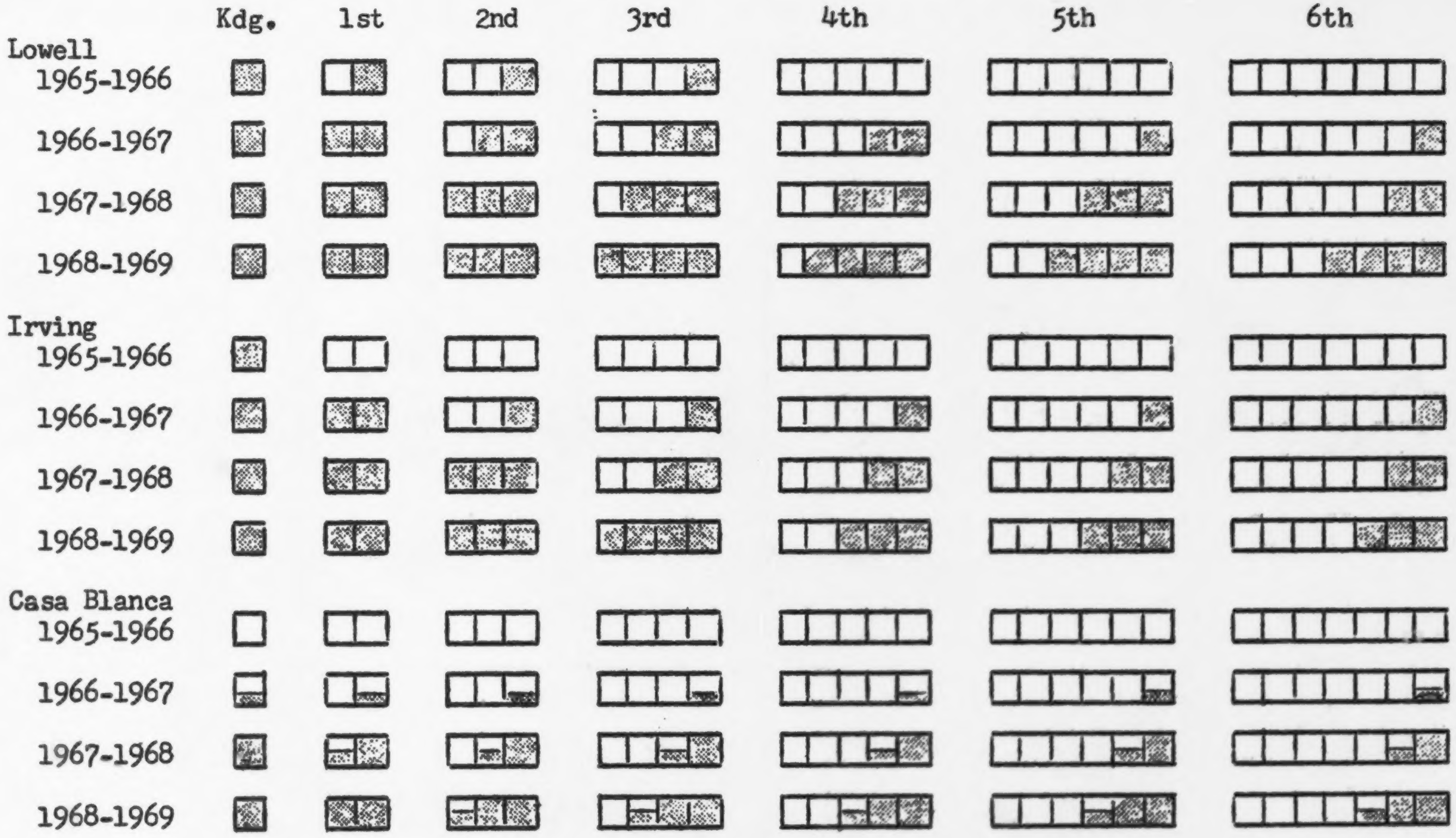


Fig. 1.--Amount of segregated and integrated schooling experienced by pupils in different grades by different dates.

▨ - integrated one year

☐ - segregated one year

▤ - one-half class segregated, one-half integrated one year

Each square denotes one year of school (e.g., first grade is indicated by two squares, one for the kindergarten year and one the year of first grade instruction).

TABLE 2

MEAN METROPOLITAN READINESS TEST AND STANFORD TOTAL READING TEST SCORES OF INTEGRATED, RECEIVING, NONRECEIVING, AND DISTRICT-WIDE PUPILS, KINDERGARTEN AND GRADES ONE, TWO, THREE, AND SIX, MAY 1966, 1967, AND 1968

Grade and Group	1965-1966			1966-1967			1967-1968		
	Number	Mean Raw Score	Mean Grade Equiv.	Number	Mean Raw Score	Mean Grade Equiv.	Number	Mean Raw Score	Mean Grade Equiv.
Kindergarten									
Integrated Pupils	141	38.90	D	131	43.55	D	122	40.20	D
Receiving Pupils	824	57.44	C	902	58.41	C	882	58.49	C
Nonreceiving School Pupils	618	50.22	C	692	53.47	C	683	55.42	C
District-wide	1927	54.	C	2051	55.86	C	2039	56.60	C
Grade One									
Integrated Pupils	205	24.87	1.5	160	24.59	1.5	145	25.20	1.5
Receiving Pupils	921	37.83	1.7	877	37.43	1.7	885	37.74	1.7
Nonreceiving School Pupils	593	31.78	1.6	651	32.56	1.6	684	30.96	1.6
District-wide	2101	34.	1.7	2022	35.5	1.8	2048	34.55	1.7
Grade Two									
Integrated Pupils	132	31.42	2.1	149	28.28	2.0	157	24.43	1.9
Receiving Pupils	898	45.53	2.7	900	44.80	2.7	882	42.64	2.6
Nonreceiving School Pupils	572	39.05	2.5	645	36.95	2.4	652	37.29	2.4
District-wide	1981	42.	2.6	2049	41.4	2.6	2020	39.74	2.5
Grade Three									
Integrated Pupils	121	46.98	2.8	125	46.14	2.7	143	41.22	2.6
Receiving Pupils	880	64.57	3.5	898	65.01	3.5	924	64.12	3.5
Nonreceiving School Pupils	574	59.09	3.2	618	58.86	3.2	643	56.43	3.1
District-wide	. .	. .	. .	1962	61.4	3.3	2065	60.22	3.3

TABLE 2--Continued

Grade and Group	1965-1966			1966-1967			1967-1968		
	Number	Mean Raw Score	Mean Grade Equiv.	Number	Mean Raw Score	Mean Grade Equiv.	Number	Mean Raw Score	Mean Grade Equiv.
Grade Six									
Integrated Pupils	104	. .	4.4	128	. .	4.5	112	. .	4.4
Receiving Pupils	935	. .	6.1	948	. .	6.1	982	. .	5.9
Nonreceiving School Pupils	562	. .	5.5	616	. .	5.5	597	. .	5.3
District-wide	1923	. .	5.7	2025	. .	5.8	2035	. .	5.6

Notes:

To make the data for the three years more comparable, 1965-1966 and 1966-1967 data for integrated pupils include data for pupils who attended segregated schools during those years but were later integrated.

As explained in the text, data for sixth grade pupils are for tests administered in October 1966, 1967, and 1968; i.e., school years 1966-1967, 1967-1968, and 1968-1969.

The number of decimal places to which mean raw scores are specified varies because fractional data were not always available.

TABLE 3

LETTER RATINGS AND READINESS STATUS CORRESPONDING TO VARIOUS RANGES OF TOTAL SCORES ON THE METROPOLITAN READINESS TESTS

Score Range	Letter Rating	Readiness Status	Significance
Above 76	A	Superior	Apparently very well equipped for first grade work. Should be given opportunity for enriched work in line with abilities indicated.
64-76	B	High Normal	Good prospects for success in first-grade work provided other indications, such as health, emotional factors, etc., are consistent.
45-63	C	Average	Likely to succeed in first-grade work. Careful study should be made of the specific strengths and weaknesses of pupils in this group and their instruction planned accordingly.
24-44	D	Low Normal	Likely to have difficulty in first-grade work. Should be assigned to slow section and given more individualized help.
Below 24	E	Low	Chances of difficulty high under ordinary instructional conditions. Further readiness work, assignment to slow sections, or individualized work is essential.

students in the test publisher's norming sample who had a particular mean raw score. The actual grade placements of Riverside pupils when the tests were administered were 1.9, 2.9, 3.9, and 6.1 in 1966 and 1967; they were 1.8, 2.8, 3.8, and 6.1 in 1968. These would have been the grade equivalents of their mean raw scores had their average performance been the same as that of the norming sample.

The data in Table 2 confirm the "Not much" response to the question regarding the effect of two years of desegregation. Average scores of kindergarten and first grade pupils have changed very little during the last two years; average scores of pupils at other grade levels have decreased slightly. This cannot, however, be attributed to integration as it is also the trend among pupils at schools which were not receiving schools.

Data for 1965-1966 are presented as "pre-desegregation" measures.

They are not, however, completely independent of the effects of desegregation as some pupils had been integrated for one year (see Figure 1), thus perhaps affecting somewhat the 1965-1966 mean scores of the integrated and receiving pupils.

Achievement of Kindergarten Pupils

The Metropolitan Readiness Tests, which are administered to all Riverside kindergarten pupils each spring, "were devised to measure the extent to which school beginners have developed in the several skills and abilities that contribute to readiness for first-grade instruction." Performance on these tests is dependent not only upon skills acquired during kindergarten but also upon many other factors such as home environment, emotional maturity, intelligence, physical condition, and general background of experience.

Results of the May 1967 and May 1968 tests are shown in Table 4 for all pupils in the district, for integrated pupils, and for receiving pupils. It is evident that wide discrepancies exist between the test performance of integrated pupils and of the other two groups. The changes which occurred between 1967 and 1968 are so minor that they were probably due to chance alone.

TABLE 4

SUMMARY DATA, METROPOLITAN READINESS TESTS, INTEGRATED, RECEIVING, AND DISTRICT-WIDE PUPILS, KINDERGARTEN, MAY 1967 AND 1968

Description of Data	May 1967			May 1968		
	Integrated Pupils	Receiving Pupils	District-Wide	Integrated Pupils	Receiving Pupils	District-Wide
Number of Pupils	98	902	2051	122	882	2039
Mean	40	58	56	40.20	58.49	56.60
Standard Deviation			16	14.62	15.50	16.65
Third Quartile	48	71	68	49	70	69
Median	40	60	57	37	59	58
First Quartile	28	47	44	29	48	45
Range of Scores	8-97	3-98	3-98	8-83	6-95	3-95

The number and per cent of integrated and receiving pupils, and the per cent of pupils in the publisher's norming sample, who scored within each of the letter ratings in May 1968 are shown in Table 5. The data indicate that a large proportion of the integrated pupils are likely to encounter difficulty in accomplishing the skills normally taught in the first grade.

TABLE 5

NUMBERS AND PERCENTAGES OF INTEGRATED AND RECEIVING PUPILS RECEIVING DIFFERENT LETTER RATINGS ON THE METROPOLITAN READINESS TESTS, MAY 1968

Letter Rating	Per Cent in Publisher's Sample	Integrated Pupils								Receiving Pupils	
		Total		Casa Blanca		Irving		Lowell			
		No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
A	7	1	0.82	. .	. .	. .	. .	1	3.12	106	12.02
B	24	11	9.02	4	7.27	3	8.57	4	12.50	242	27.44
C	38	31	25.41	14	25.45	6	17.14	11	34.38	367	41.61
D	24	70	57.38	37	67.27	17	48.57	16	50.00	153	17.35
E	7	9	7.38	. .	. .	9	25.71	. .	. .	14	1.59
Total	100	122	100.01	55	99.99	35	99.99	32	100.00	882	100.01

These per cents are presented graphically in Figure 2 as are the corresponding data for May 1967. Comparison of the data for integrated pupils for the two years reveals that the largest change occurred in the "E" letter rating, with the scores of 9 per cent fewer integrated pupils falling into that category in 1968 than in 1967. Most of this difference was absorbed by the "D" category, which increased 7 per cent. These differences imply that, while approximately the same per cent of integrated pupils would experience difficulty with first grade work in 1968-1969 as in 1967-1968, that difficulty should be more easily over-

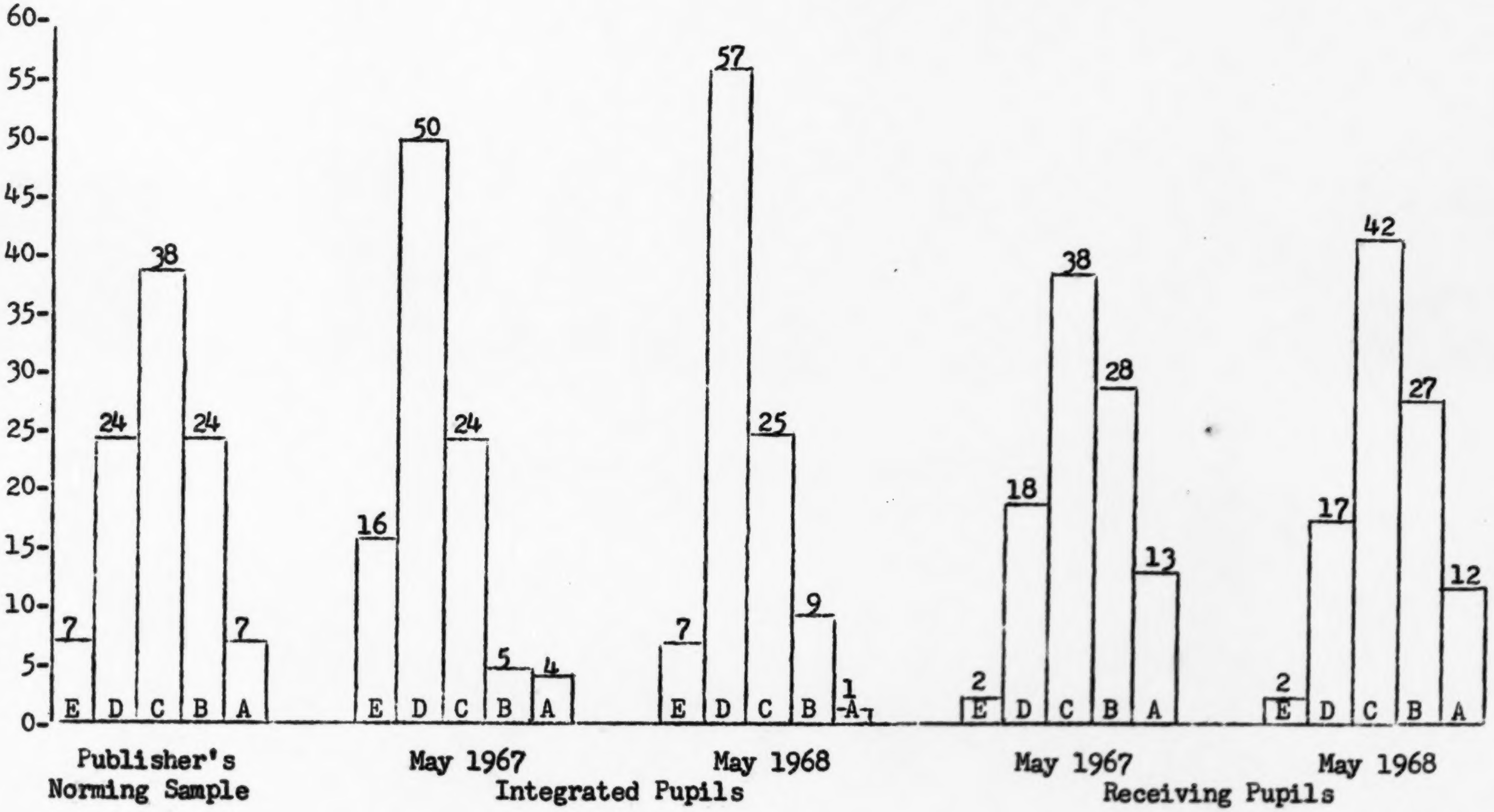


Fig. 2.--Percentages of integrated and receiving pupils receiving different Letter Ratings on the Metropolitan Readiness Tests, May 1967 and 1968.

come for a larger proportion of pupils this year than last year. Few changes occurred in the distribution of scores of receiving pupils, with slightly fewer scoring in the "A" and "B" categories and slightly more in the "C" category.

Integrated Pupils

Average scores of the integrated pupils at the twelve receiving schools in May 1967 and in May 1968 are shown in Table 6. Comparison of the data for the two years reveals that, while the mean score of the total group did not change, the mean scores of the pupils at some of the schools fluctuated considerably.

It is interesting to observe that at School L, the integrated pupils had the lowest mean score in May 1967 and the highest mean score in May 1968. The May 1968 mean was also higher than the mean of the receiving pupils at eight of the twelve schools. An initial theory regarding the reason for this dramatic change was that perhaps the integrated pupils were from higher socioeconomic backgrounds in May 1968 than in May 1967. During the first year, all of the pupils were from the same area; during the second year, half of them were from that area and half from another area. This may account for some of the difference, but the mean score of the pupils from the first area was thirty points higher in 1968 than in 1967. Different goals and techniques of the teachers may have contributed significantly to the change: the average score of the receiving pupils at that school was ten points higher in 1968 than in 1967.

Comparison of the average readiness of integrated pupils attending different receiving schools indicates that wide variability exists among schools, ranging from a mean of 23.33 to one of 58.50 in May 1968. One of the most interesting findings of the analysis of these data, to be presented with the data for primary grade pupils, offers an explanation for much of this variability. In essence, it is that the home backgrounds of the receiving pupils influence the achievement of both the integrated and the receiving pupils.

Table 7 shows the average readiness scores of the integrated children by the areas in which they live and the schools which they attended. The "total" row shows that the means of each of the three groups changed very little from 1967 to 1968. Inspection of the data for the various schools, though, reveals that the test performance of children at some schools in 1968 differed considerably from 1967.

Comparison of the data for children from each of the areas attending different schools also reveals wide variations. For example, in 1968 the mean of the children from Casa Blanca who attended School A was 29.83; the mean of the children who were bused from Cas Blanca to

School L was 65.00.

TABLE 6

MEAN METROPOLITAN READINESS TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL, KINDERGARTEN, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Letter Rating	Number	Mean Raw Score	Mean Letter Rating
A	6	36.83	D	12	36.50	D
B	7	59.57	C	10	52.10	C
C	3	. .	. .	3	. .	. .
D	. .	. .	. .	4	. .	. .
E	22	40.95	D	16	42.19	D
F	16	45.88	C	23	38.74	D
G	9	45.89	C	9	28.78	D
H	5	44.00	D	15	37.47	D
I	6	23.83	D	6	23.33	E
J	9	36.00	D	7	26.14	D
K	4	. .	. .	7	47.86	C
L	11	22.18	E	10	58.50	C
Total	98	40.37	D	122	40.20	D

Note:

Throughout this report, mean scores have not been included for groups of less than five pupils.

TABLE 7

MEAN METROPOLITAN READINESS TEST SCORES OF INTEGRATED PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, KINDERGARTEN, MAY 1967 AND 1968

School	Casa Blanca: May 1966 Mean=41.07 (D)						Irving: May 1966 Mean=36.27 (D)						Lowell: May 1966 Mean=38.06 (D)					
	May 1967			May 1968			May 1967			May 1968			May 1967			May 1968		
	N	Mean Raw Score	Ltr. Rtg.	N	Mean Raw Score	Ltr. Rtg.	N	Mean Raw Score	Ltr. Rtg.	N	Mean Raw Score	Ltr. Rtg.	N	Mean Raw Score	Ltr. Rtg.	N	Mean Raw Score	Ltr. Rtg.
A	. .	. .	. .	6	29.83	D	. .	. .	. .	. .	. .	. .	6	36.83	D	6	43.17	D
B	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	7	59.57	C	10	52.10	C
C	. .	. .	. .	. .	. .	. .	3	. .	. .	2	. .	. .	. .	. .	. .	1	. .	. .
D	. .	. .	. .	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
E	13	41.69	D	13	41.00	D	. .	. .	. .	. .	. .	. .	9	39.89	D	3	. .	. .
F	11	45.45	C	20	39.25	D	. .	. .	. .	. .	. .	. .	5	46.80	C	3	. .	. .
G	. .	. .	. .	. .	. .	. .	9	45.89	C	9	28.78	D	. .	. .	. .	. .	. .	. .
H	. .	. .	. .	3	. .	. .	2	. .	. .	4	. .	. .	3	. .	. .	8	39.00	D
I	. .	. .	. .	4	. .	. .	6	23.83	D	2	. .	. .	. .	. .	. .	. .	. .	. .
J	. .	. .	. .	. .	. .	. .	3	. .	. .	6	26.00	D	6	33.67	D	1	. .	. .
K	. .	. .	. .	. .	. .	. .	4	. .	. .	7	47.86	C	. .	. .	. .	. .	. .	. .
L	. .	. .	. .	5	65.00	B	11	22.18	E	5	52.00	C	. .	. .	. .	. .	. .	. .
Total	24	43.42	D	55	40.11	D	38	35.05	D	35	36.51	D	36	43.94	D	32	44.38	D

It is assumed that many of the changes from one year to the next and differences between schools are due to differences in individual children: as the number of children in some groups of integrated pupils is quite small, the means are much more sensitive to individual differences than are the means of larger groups.

Some of the differences are probably due to the varying amounts of emphasis which teachers place on developing the skills which the test measures. The personal philosophy of a teacher regarding the objectives of kindergarten and her evaluation of the needs of a particular group of children will lead her to formulate goals which will emphasize the development of certain behaviors and skills. This leads to differences in the test performance of different groups of children.

The tenuousness of the hypotheses offered throughout this report regarding reasons for differences results from the presence of many variables which affect standardized test performance but which were not included in this analysis. Some of these variables are very difficult, if not impossible, to control: the psychological and physical condition of the child when he took the test, the test administration skills of the teacher, etc. Many other variables, which may or may not affect achievement, were not included because information regarding them was not readily available; however, it is anticipated that they can be used in future analyses. They include the effects of participation in preschool programs, the influence of older siblings who attend integrated schools, and differences in socioeconomic status, sex, and ethnic backgrounds.

These variables exert more influence on individual pupils than upon average scores of groups of pupils; however, as mentioned above, some of the groups are so small that their average scores are quite sensitive to differences in one or two pupils.

Future analyses will also consider differences in test scores which are evident at this time, particularly among pupils attending different schools, to determine whether or not they are constant and why they exist.

Receiving Pupils

The average Metropolitan Readiness Test scores of receiving pupils in May 1967 and in May 1968 are shown in Table 8. As was true of the integrated pupils, the school averages fluctuated between the two years while the mean of the total group did not change. The differences between the schools are presumed to be due primarily to socioeconomic differences.

Achievement of First, Second, and Third Grade Pupils

It has previously been observed that the average Stanford Total Reading scores of the total integrated and total receiving first grade

TABLE 8

MEAN METROPOLITAN READINESS TEST SCORES, RECEIVING PUPILS, BY SCHOOL, KINDERGARTEN, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Letter Rating	Number	Mean Raw Score	Mean Letter Rating
A	104	53.93	C	80	52.41	C
B	108	68.55	B	67	70.72	B
C	40	57.45	C	49	61.82	C
D	. .	. .	. .	39	65.79	B
E	137	56.09	C	137	56.85	C
F	117	61.93	C	102	57.21	C
G	61	58.64	C	77	55.06	C
H	90	55.61	C	91	58.38	C
I	103	58.93	C	112	54.07	C
J	36	49.75	C	26	55.85	C
K	57	54.84	C	51	56.02	C
L	49	58.69	C	51	69.04	B
Total	902	58.41	C	882	58.49	C

pupils did not change; the mean scores of all total second and third grade groups, however, decreased slightly. Data for these pupils will be analyzed in more detail here.

Although mean scores provide a convenient method of assessing "average" performance, they are not indicative of the variations among the scores composing the mean. Standard deviations, quartiles, and ranges, included in Table 9, provide this type of information. Through the utilization of quartiles, medians, and ranges, the range of scores of each succeeding 25 per cent of a group of pupils can be determined. These ranges, in grade equivalents, are presented graphically in Figure 3. Each bar is divided into four sections. The total bar represents 100 per cent of the pupils in a particular group and shows the range of their scores; each division represents 25 per cent of those pupils and shows the range of their scores. Referring to the second bar, it can be seen that all of the first grade integrated pupils in 1967-1968 scored between 1.0 and 3.1. The top 25 per cent scored at or above 1.6 (the third quartile), the second 25 per cent scored between 1.5 (the median) and 1.6, the next 25 per cent scored between 1.3 and 1.5, and the the lowest 25 per cent scored at or below 1.3 (the first quartile).

This type of analysis shows that there are wide differences between the achievement of integrated and receiving pupils, that those differences are greater between the higher achieving pupils than between the lower achieving pupils, and that they widen with progression through the grades.

Integrated Pupils

Returning to mean, or average, scores, 1967 and 1968 data for integrated first, second, and third grade pupils are presented by school in Tables 10, 11, and 12. Comparison of the 1967 data with the 1968 data shows that, as at the kindergarten level, the mean scores of pupils at some of the schools fluctuated more than did the means of the total groups. Although the changes occurred in both directions, the majority of them were positive in the first grade and negative in the second and third grades. At the present time, no explanation for these "general trends" is apparent, but they were also evident among receiving pupils and among pupils at schools which were not affected by integration.

Figures 4, 5, and 6 show the mean Stanford Total Reading grade equivalents of integrated pupils from each of the three sending areas at the end of the first, second, and third grades in 1966, 1967, and 1968. The letters and numerals in parentheses indicate whether the children were segregated or integrated when tested and, if integrated, the number of years integrated. Reading each figure downward, by column, provides a comparison of the achievement of pupils from a sending area at each of the three grade levels at various stages of segregation and integration. It reveals a general, but usually slight, downward trend of the achievement of pupils from Casa Blanca and fluctuations among pupils from Irving and Lowell but no general trend.

The progression of a group of children through the primary grades may be seen by looking at the figures diagonally. It becomes readily

TABLE 9

SUMMARY DATA, STANFORD TOTAL READING TESTS, INTEGRATED AND RECEIVING PUPILS, GRADES ONE, TWO, AND THREE, MAY 1967 AND 1968

Description of Data	Grade One				Grade Two				Grade Three			
	Integrated Pupils		Receiving Pupils		Integrated Pupils		Receiving Pupils		Integrated Pupils		Receiving Pupils	
	May 1967	May 1968	May 1967	May 1968	May 1967	May 1968	May 1967	May 1968	May 1967	May 1968	May 1967	May 1968
No. of Pupils	117	145	877	885	121	157	900	882	90	143	898	924
Mean												
Raw Score	24.64	25.20	37.43	37.74	26.95	24.43	44.80	42.64	45.67	41.22	65.01	64.12
Gr. Equiv.	1.5	1.5	1.7	1.7	2.0	1.9	2.7	2.6	2.7	2.6	3.5	3.5
S.D.	. . .	12.68	. .	16.09	. .	10.89	. .	18.76	. .	17.92	. .	18.96
Q_3	1.6	1.6	1.9	1.9	2.2	2.1	3.3	3.2	3.2	3.1	4.5	4.5
Md	1.5	1.5	1.7	1.7	1.9	1.8	2.7	2.5	2.7	2.5	3.7	3.7
Q_1	1.4	1.3	1.5	1.5	1.7	1.7	2.0	2.0	2.3	1.9	3.1	2.9
Range of Scores	<1.0-2.5	<1.0-3.1	<1.0-4.0	<1.0-4.0	1.2-3.5	<1.0-3.4	<1.0-6.4	<1.0-6.9	1.4-5.5	<1.0-5.9	1.2-7.5	1.2-7.5+

Note:

Means and standard deviations are specified in raw score units; medians, quartiles, and ranges are given in grade equivalents.

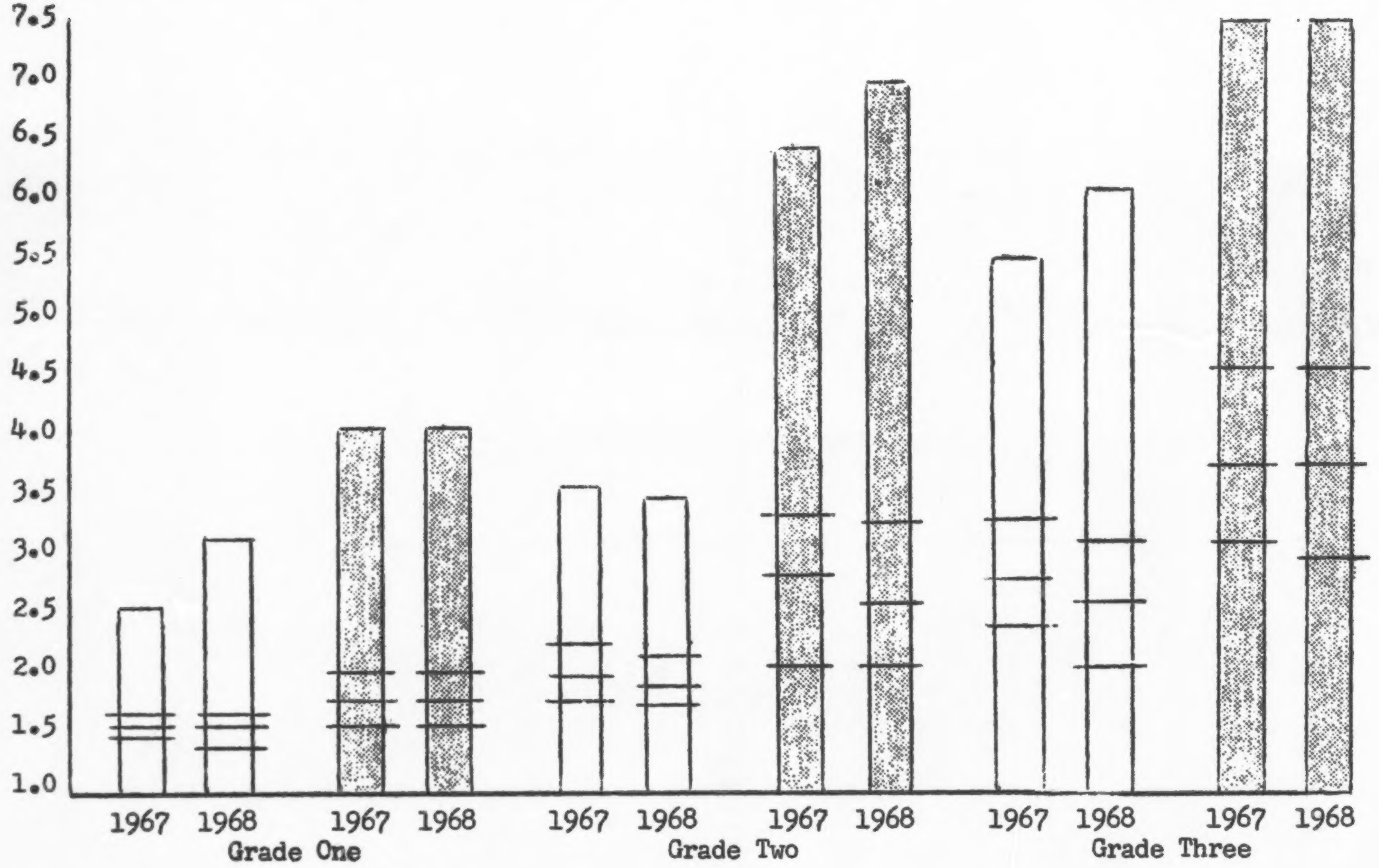


Fig. 3.--Medians, quartiles, and ranges, Stanford Total Reading Tests, integrated and receiving pupils, grades one, two, and three, May 1967 and May 1968.

☐ integrated pupils

▨ receiving pupils

TABLE 10

MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL, GRADE ONE, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Grade Equivalent	Number	Mean Raw Score	Mean Grade Equivalent
A	9	21.44	1.4	14	27.14	1.6
B	10	31.60	1.6	8	42.38	1.8
C	2	. .	. .	4	. .	. .
D	. .	. .	. .	6	19.00	1.4
E	15	29.13	1.6	26	25.27	1.5
F	25	17.76	1.4	16	19.75	1.4
G	6	27.50	1.6	10	31.50	1.6
H	9	16.89	1.3	14	22.21	1.5
I	9	19.78	1.4	21	23.33	1.5
J	12	33.75	1.7	9	18.89	1.4
K	5	22.20	1.5	1	. .	. .
L	15	30.93	1.6	16	28.25	1.6
Total	117	24.64	1.5	145	25.20	1.5

apparent that performance on the tests has not increased the equivalent of one year during a year's school attendance for any of the groups being studied.

TABLE 11

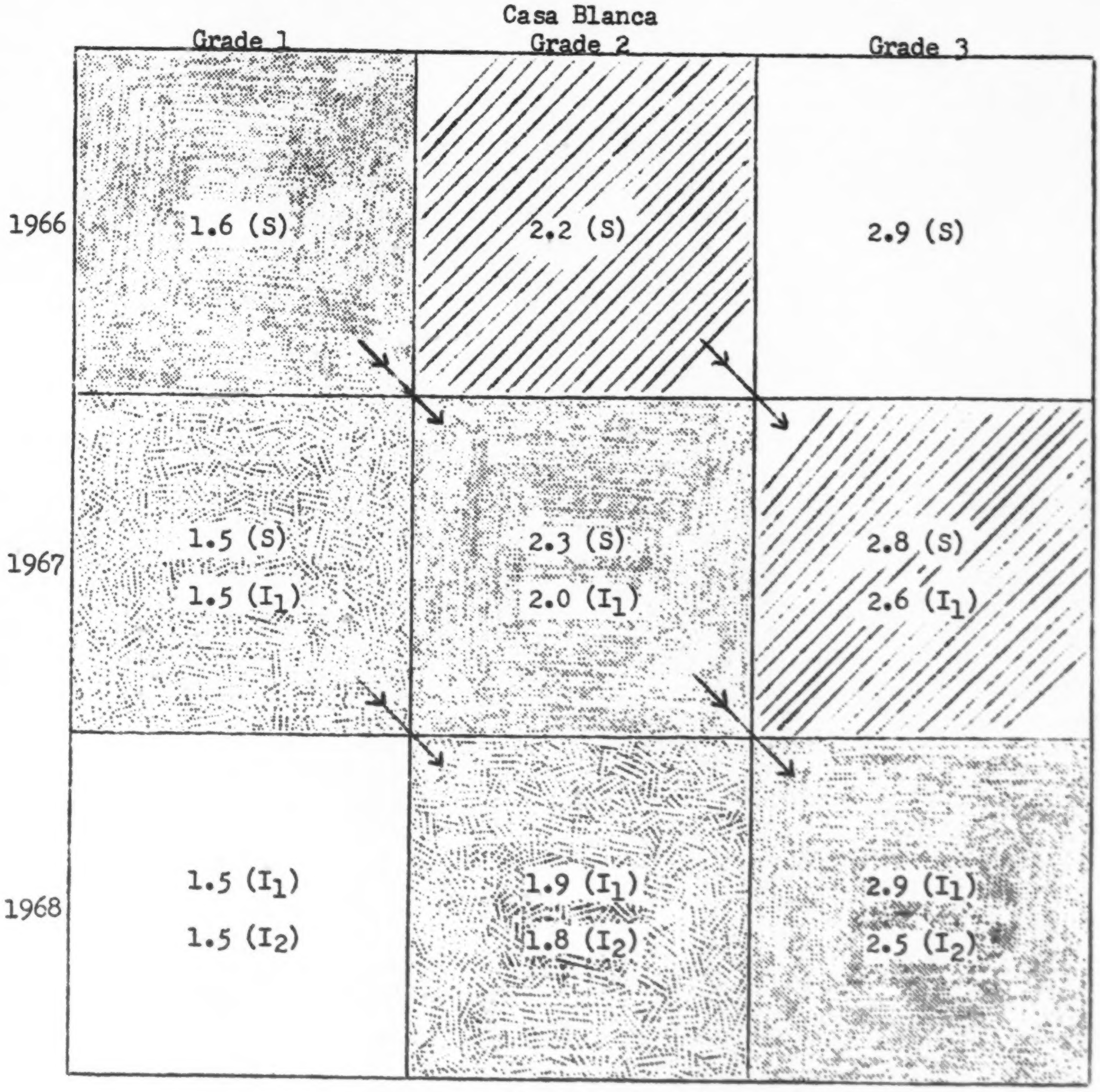
MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL, GRADE TWO, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Grade Equivalent	Number	Mean Raw Score	Mean Grade Equivalent
A	15	26.73	2.0	12	26.58	2.0
B	9	27.78	2.0	13	37.69	2.5
C	4	. .	. .	3	. .	. .
D	. .	. .	. .	10	31.00	2.1
E	18	30.33	2.1	21	24.95	1.9
F	23	27.39	2.0	23	21.26	1.8
G	6	24.50	1.9	9	28.44	2.0
H	7	26.71	2.0	13	22.69	1.8
I	16	21.00	1.8	19	15.74	1.7
J	6	20.83	1.8	8	18.25	1.7
K	7	31.86	2.2	6	26.50	1.9
L	10	27.20	2.0	20	23.60	1.9
Total	121	26.95	2.0	157	24.43	1.9

TABLE 12

MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL, GRADE THREE, MAY 1967 AND 1968

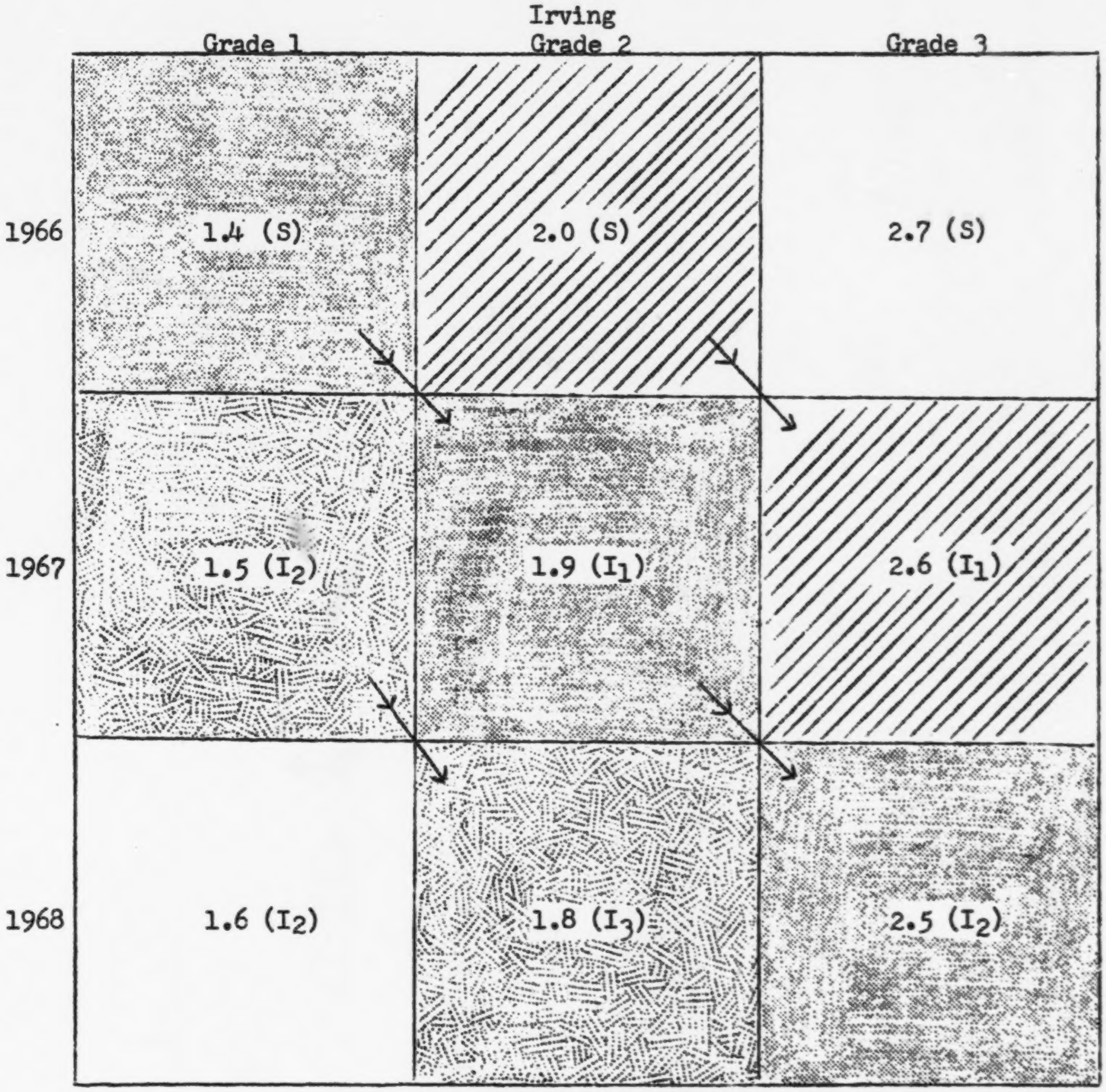
School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Grade Equivalent	Number	Mean Raw Score	Mean Grade Equivalent
A	12	52.58	3.0	12	42.33	2.6
B	11	51.45	2.9	14	43.57	2.7
C	2	. .	. .	5	42.20	2.6
D	. .	. .	. .	4	. .	. .
E	17	45.53	2.7	22	37.27	2.4
F	17	40.82	2.6	23	40.83	2.6
G	7	41.14	2.6	4	. .	. .
H	1	. .	. .	14	47.43	2.8
I	8	38.25	2.5	16	33.81	2.3
J	6	61.00	3.3	8	33.00	2.2
K	3	. .	. .	5	42.60	2.6
L	6	32.67	2.2	16	48.25	2.8
Total	90	45.67	2.7	143	41.22	2.6



Casa Blanca

	Grade 1	Grade 2	Grade 3
1966	1.6 (S)	2.2 (S)	2.9 (S)
1967	1.5 (S) 1.5 (I_1)	2.3 (S) 2.0 (I_1)	2.8 (S) 2.6 (I_1)
1968	1.5 (I_1) 1.5 (I_2)	1.9 (I_1) 1.8 (I_2)	2.9 (I_1) 2.5 (I_2)

Fig. 4.--Mean Stanford Total Reading Test scores, in grade equivalents, integrated pupils from Casa Blanca, grades one, two, and three, May 1966, 1967, and 1968.



Irving

	Grade 1	Grade 2	Grade 3
1966	1.4 (S)	2.0 (S)	2.7 (S)
1967	1.5 (I_2)	1.9 (I_1)	2.6 (I_1)
1968	1.6 (I_2)	1.8 (I_3)	2.5 (I_2)

Fig. 5.--Mean Stanford Total Reading Test scores, in grade equivalents, integrated pupils from Irving, grades one, two, and three, May 1966, 1967, and 1968.

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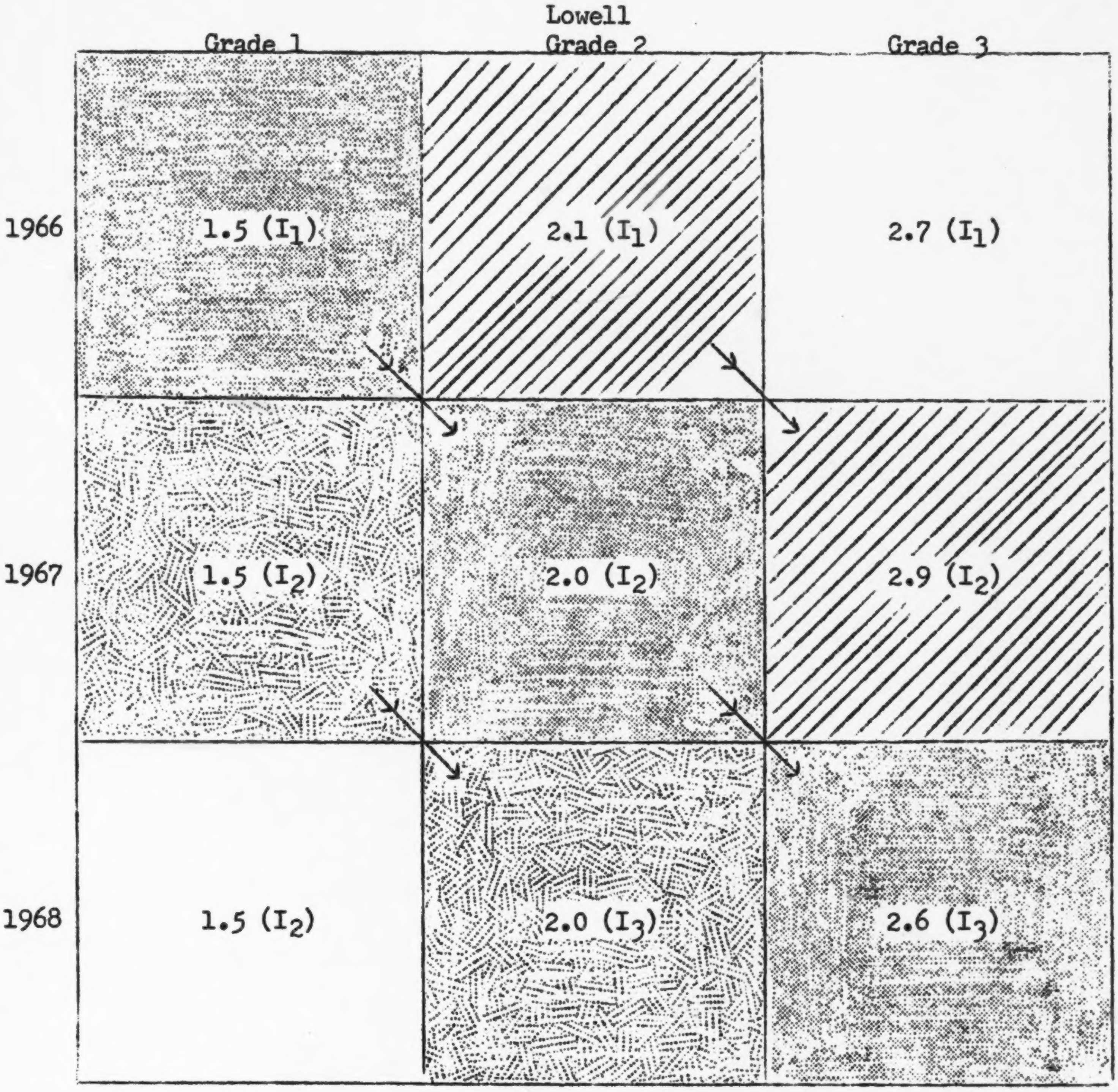

Lowell

	Grade 1	Grade 2	Grade 3
1966	1.5 (I_1)	2.1 (I_1)	2.7 (I_1)
1967	1.5 (I_2)	2.0 (I_2)	2.9 (I_2)
1968	1.5 (I_2)	2.0 (I_3)	2.6 (I_3)

Fig. 6.--Mean Stanford Total Reading Test scores, in grade equivalents, integrated pupils from Lowell, grades one, two, and three, May 1966, 1967, and 1968.

To compare the growth of pupils attending different receiving schools, Tables 13 and 14 show the average growth scores of integrated and receiving pupils. A "growth score" is the difference between the grade scores obtained during two different testing sessions. These data were available for all pupils who were tested in the first and second grades in May 1967 and the second and third grades in May 1968. The numbers in the tables represent the average number of months gained during almost ten months of school attendance.

The average gains of various groups of integrated pupils ranged from zero to eleven months, similar to the range of receiving pupils. Taken as entire units, however, the receiving pupils grew much more than did the integrated pupils, revealing a trend which, unless arrested, will continue to increase the disparity between the measured achievement of the two groups.

Tables 15, 16, and 17 show the 1967 and 1968 mean reading test scores of integrated pupils by the areas in which they live and the schools which they attended. Again, the average scores of these small groups of pupils fluctuated much more between the two years than did the averages of larger groups.

The preceding discussion of the data presented in Tables 10 through 17 dealt primarily with differences between the May 1967 and May 1968 average test scores of various groups of integrated pupils. Other differences evident are the variations of the mean scores of pupils attending different receiving schools. These variations are also noticeable among the receiving pupils, but have been attributed primarily to socioeconomic differences of the neighborhoods in which the schools are located. Why do they occur among integrated pupils, many of whom come from similar backgrounds but achieve quite differently at different receiving schools? Comparisons across grade levels revealed certain consistencies which led to the calculation of correlation coefficients. Significant correlations were found to exist between the mean achievement scores of integrated pupils and the mean achievement scores of receiving pupils in kindergarten and in each of the first three grades. That is, the mean achievement scores of each group of pupils (integrated and receiving) were ranked from high to low by school; if the mean score of the receiving pupils at a particular school ranked high, the mean score of the integrated pupils at the school was likely to also rank high. Conversely, if the mean score of receiving pupils was low, the mean score of integrated pupils was likely to be low also. The correlation coefficients are presented in Table 18.

These data are consistent with the results of a survey of four thousand public schools throughout the United States which the United States Office of Education conducted on the equality of educational opportunity. One of the findings of this survey was that " . . . the social composition of the student body is more highly related to achievement, independently of the student's own social background, than is any

TABLE 13

MEAN GROWTH SCORES, STANFORD TOTAL READING TEST, INTEGRATED AND RECEIVING PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, GRADE ONE, MAY 1967 - GRADE TWO, MAY 1968

School	Integrated Pupils								Receiving Pupils
	Total		Casa Blanca		Irving		Lowell		
	No.	Mean	No.	Mean	No.	Mean	No.	Mean	Mean
A	10	5.6	1	. .	. .	. .	9	5.7	8.
B	12	8.8	. .	. .	. .	. .	12	8.8	10.
C	2	. .	. .	. .	2	. .	. .	. .	9.
D	9	5.2	9	5.2	. .	. .	. .	. .	. .
E	13	4.8	9	4.1	. .	. .	4	. .	9.
F	21	4.7	15	4.7	. .	. .	6	4.7	8.
G	8	5.6	1	. .	7	5.6	. .	. .	8.
H	12	4.5	4	. .	2	. .	6	5.2	11.
I	16	2.0	9	3.2	7	0.4	. .	. .	8.
J	6	0.2	. .	. .	2	. .	4	. .	8.
K	5	4.6	. .	. .	5	4.6	. .	. .	10.
L	17	2.9	6	5.3	11	1.6	. .	. .	9.
Total	131	4.5	54	4.4	36	2.9	41	5.9	9.

Note:

The mean growth scores presented here represent the average difference, in months, between the May 1967 and May 1968 Stanford Total Reading Test grade scores.

TABLE 14

MEAN GROWTH SCORES, STANFORD TOTAL READING TEST, INTEGRATED AND RECEIVING PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, GRADE TWO, MAY 1967 - GRADE THREE, MAY 1968

School	Integrated Pupils								Receiving Pupils
	Total		Casa Blanca		Irving		Lowell		
	No.	Mean	No.	Mean	No.	Mean	No.	Mean	Mean
A	11	5.4	2	. .	. .	. .	9	6.0	7.
B	9	7.2	. .	. .	. .	. .	9	7.2	11.
C	5	3.6	. .	. .	5	3.6	. .	. .	2.
D	3	. .	3	. .	. .	. .	. .	. .	. .
E	17	3.4	10	2.3	1	. .	6	6.3	9.
F	20	5.5	8	6.2	. .	. .	12	5.0	8.
G	4	. .	. .	. .	4	. .	. .	. .	4.
H	11	9.4	6	10.7	. .	. .	5	7.8	11.
I	17	3.4	3	. .	14	3.1	. .	. .	7.
J	7	4.7	. .	. .	2	. .	5	5.2	9.
K	3	. .	. .	. .	3	. .	. .	. .	8.
L	12	5.8	4	. .	8	4.0	. .	. .	9.
Total	119	5.2	36	5.6	37	3.5	46	6.1	8.

Note:

The mean growth scores presented here represent the average difference, in months, between the May 1967 and May 1968 Stanford Total Reading Test grade scores.

TABLE 15

MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, GRADE ONE, MAY 1967 AND 1968

School	Casa Blanca: May 1966 Mean=31 (1.6)						Irving: May 1966 Mean=21 (1.4)						Lowell: May 1966 Mean=24 (1.5)					
	May 1967			May 1968			May 1967			May 1968			May 1967			May 1968		
	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.
A	. .	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	9	21.44	1.4	12	27.25	1.6
B	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	10	31.60	1.6	8	42.38	1.8
C	. .	. .	. .	. .	. .	. .	2	. .	. .	4	. .	. .	. .	. .	. .	. .	. .	. .
D	. .	. .	. .	6	19.00	1.4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
E	10	29.80	1.6	19	24.11	1.5	. .	. .	. .	. .	. .	. .	5	27.80	1.6	7	28.43	1.6
F	18	18.94	1.4	7	18.43	1.4	. .	. .	. .	. .	. .	. .	7	14.71	1.3	9	20.78	1.4
G	. .	. .	. .	1	. .	. .	6	27.50	1.6	9	33.44	1.6	. .	. .	. .	. .	. .	. .
H	. .	. .	. .	6	25.50	1.5	2	. .	. .	2	. .	. .	7	18.00	1.4	6	19.00	1.4
I	. .	. .	. .	9	24.89	1.5	9	19.78	1.4	11	21.73	1.5	. .	. .	. .	1	. .	. .
J	. .	. .	. .	. .	. .	. .	3	. .	. .	3	. .	. .	9	35.33	1.7	6	17.50	1.4
K	. .	. .	. .	. .	. .	. .	5	22.20	1.5	1	. .	. .	. .	. .	. .	. .	. .	. .
L	. .	. .	. .	3	. .	. .	15	30.93	1.6	13	30.00	1.6	. .	. .	. .	. .	. .	. .
Total	28	22.82	1.5	53	22.77	1.5	42	24.98	1.5	43	26.72	1.6	47	25.43	1.5	49	26.49	1.5

TABLE 16

MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, GRADE TWO, MAY 1967 AND 1968

School	Casa Blanca: May 1966 Mean=33 (2.2)						Irving: May 1966 Mean=27 (2.0)						Lowell: May 1966 Mean=31 (2.1)					
	May 1967			May 1968			May 1967			May 1968			May 1967			May 1968		
	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.
A	. .	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	15	26.73	2.0	10	25.60	1.9
B	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	9	27.78	2.0	13	37.69	2.5
C	. .	. .	. .	. .	. .	. .	4	. .	. .	3	. .	. .	. .	. .	. .	. .	. .	. .
D	. .	. .	. .	10	31.00	2.1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
E	11	30.55	2.1	17	23.24	1.8	. .	. .	. .	. .	. .	. .	7	30.00	2.1	4	. .	. .
F	12	26.67	2.0	17	21.94	1.8	. .	. .	. .	. .	. .	. .	11	28.18	2.0	6	19.33	1.7
G	. .	. .	. .	1	. .	. .	6	24.50	1.9	8	29.50	2.1	. .	. .	. .	. .	. .	. .
H	. .	. .	. .	4	. .	. .	3	. .	. .	2	. .	. .	4	. .	. .	7	24.00	1.9
I	. .	. .	. .	10	17.40	1.7	16	21.00	1.8	9	13.89	1.6	. .	. .	. .	. .	. .	. .
J	. .	. .	. .	1	. .	. .	2	. .	. .	3	. .	. .	4	. .	. .	4	. .	. .
K	. .	. .	. .	. .	. .	. .	7	31.86	2.2	6	26.50	1.9	. .	. .	. .	. .	. .	. .
L	. .	. .	. .	6	26.83	2.0	10	27.20	2.0	14	22.21	1.8	. .	. .	. .	. .	. .	. .
Total	23	28.52	2.0	68	23.57	1.9	48	26.33	1.9	45	22.07	1.8	50	26.82	2.0	44	28.18	2.0

TABLE 17

MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, GRADE THREE, MAY 1967 AND 1968

School	Casa Blanca: May 1966 Mean=50 (2.9)						Irving: May 1966 Mean=46 (2.7)						Lowell: May 1966 Mean=44 (2.7)					
	May 1967			May 1968			May 1967			May 1968			May 1967			May 1968		
	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.	N	Mean Raw Score	Grade Equiv.
A	. .	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	12	52.58	3.0	10	45.20	2.7
B	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	11	51.45	2.9	14	43.57	2.7
C	. .	. .	. .	. .	. .	. .	2	. .	. .	5	42.20	2.6	. .	. .	. .	. .	. .	. .
D	. .	. .	. .	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
E	13	47.31	2.8	15	36.60	2.4	. .	. .	. .	1	. .	. .	4	. .	. .	6	43.00	2.6
F	13	38.62	2.5	11	39.27	2.5	. .	. .	. .	. .	. .	. .	4	. .	. .	12	42.25	2.6
G	. .	. .	. .	. .	. .	. .	7	41.14	2.6	4	. .	. .	. .	. .	. .	. .	. .	. .
H	. .	. .	. .	6	59.33	3.2	. .	. .	. .	2	. .	. .	1	. .	. .	6	42.67	2.6
I	. .	. .	. .	3	. .	. .	8	38.25	2.5	13	30.92	2.1	. .	. .	. .	. .	. .	. .
J	. .	. .	. .	. .	. .	. .	3	. .	. .	3	. .	. .	3	. .	. .	5	30.40	2.1
K	. .	. .	. .	. .	. .	. .	3	. .	. .	5	42.60	2.6	. .	. .	. .	. .	. .	. .
L	. .	. .	. .	4	. .	. .	6	32.67	2.2	12	43.42	2.6	. .	. .	. .	. .	. .	. .
Total	26	42.96	2.6	45	43.80	2.7	29	40.62	2.6	45	37.51	2.5	35	51.86	2.9	53	42.17	2.6

TABLE 18

CORRELATION BETWEEN MEAN ACHIEVEMENT OF INTEGRATED AND RECEIVING PUPILS AT VARIOUS GRADE LEVELS, MAY 1968

Grade	Test	Correlation Coefficient
Kindergarten	Metropolitan Readiness	.78
Grade One	Stanford Reading	.67
Grade Two	Stanford Reading	.55
Grade Three	Stanford Reading	.56

Note:

All of the above Spearman rank correlation coefficients are significant beyond the .05 level.

school factor." Perhaps children readily adopt the attitudes of their classmates toward school. If those classmates are from homes of middle or upper socioeconomic status, they are likely to place a high value upon educational achievement and to perceive of themselves as capable of attaining the level of educational achievement to which they aspire. The newly integrated child who feels that he has been accepted by his peers and by his teacher is likely also to place a high value upon educational achievement and to adopt a positive attitude toward his ability to successfully master those tasks which are a part of the school curriculum and thus increase the probability that he actually will succeed.

A factor contributing to the strength of the correlations may have been the fact that some of the integrated pupils who are from a higher socioeconomic background than most of the other integrated pupils attend a specific school at which the average socioeconomic backgrounds of the receiving pupils are higher than those of the receiving pupils at most of the other schools. To what extent this is true of integrated and receiving pupils at other schools is not known at this time. It is very doubtful, though, that it could be completely responsible for the high correlations found at all primary grade levels as those responsible for developing the integration schedule did not attempt to "match" the socioeconomic backgrounds of the sending and receiving pupils in order to minimize the differences between them.

Other factors which may have led to some of the differences include the many, and somewhat elusive, factors from which the "psychological atmosphere" of the classroom evolves. Paramount among these factors are the attitudes of teachers and receiving pupils toward the social and academic capacities of individuals of minority ethnic status.

Irwin Katz suggests that " . . . racially balanced classrooms can generate both favorable and detrimental influences on the performance of minority-group students: the conditions promoting one or the other define the difference between mere physical desegregation and true racial integration. . . The psychological evidence that I have presented is consistent with a definition of racial integration which emphasizes the beneficial effects to Negro pupils of attending racially balanced classes, when an atmosphere of genuine respect and acceptance prevails." The factors which, in an atmosphere of social acceptance, generate a favorable influence on the performance of minority group pupils are the knowledge that they will be compared with higher achieving pupils in an integrated situation than in a segregated situation and the high incentive value of favorable evaluation by Anglo-American adults and peers. In a less favorable atmosphere, the factors which are detrimental to academic performance are the fear, anger, and humiliation resulting from rejection by classmates or teachers; the low expectancy of academic success caused by a marked discrepancy in the educational standards of the integrated and receiving pupils and the feelings of inferiority which are acquired by the integrated pupils outside the school; and the emotional responses elicited when academic failure threatens disapproval by others, such as parents, teachers, and classmates. Which of these factors predominate will affect achievement; one of the teacher's roles is to help create the atmosphere which will determine which factors prevail.

Other very interesting research, the conclusions of which might apply to any school children, but especially to minority children in an integrated setting, was conducted by Rosenthal and Jacobson. At the beginning of a school year, teachers were told that, on the basis of test results, certain of their pupils were likely to "bloom" during that year. Although the pupils who were predicted to "bloom" were selected randomly, not on the basis of any test scores, their IQ scores rose more during the year than did the IQ scores of their classmates. The authors concluded that these gains were due to the increased expectations of the teachers. It is possible that some Riverside teachers have expected better academic performance from integrated pupils than have other Riverside teachers and have communicated these expectations to their pupils, whose more positive self-attitudes then led to improved performance.

Receiving Pupils

Average Stanford Total Reading Test scores of receiving pupils in May 1967 and May 1968 are presented in Tables 19, 20, and 21. As mentioned earlier, the average score of first grade pupils did not change but the averages of second and third grade pupils decreased slightly. To determine whether or not these changes resulted from school desegregation,

TABLE 19

MEAN STANFORD TOTAL READING TEST SCORES, RECEIVING PUPILS, BY RECEIVING SCHOOL, GRADE ONE, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Grade Equivalent	Number	Mean Raw Score	Mean Grade Equivalent
A	107	33.59	1.7	92	36.63	1.7
B	122	40.91	1.8	78	48.40	1.9
C	51	37.27	1.7	36	36.33	1.7
D	. .	. .	. .	39	40.82	1.8
E	92	35.59	1.7	137	35.26	1.7
F	96	34.35	1.7	112	33.39	1.6
G	75	34.77	1.7	65	39.94	1.7
H	67	30.90	1.6	95	36.51	1.7
I	112	40.41	1.7	91	36.36	1.7
J	42	40.79	1.8	38	28.58	1.6
K	46	36.30	1.7	43	43.91	1.8
L	67	47.51	1.9	59	41.30	1.8
Total	877	37.43	1.7	885	37.74	1.7

similar data were compiled for schools which were not designated as receiving schools. The data, which are shown in Table 22, reveal that similar changes also occurred at those schools, except that none of their average scores declined as much as did those of the second grade at School C and the third grade at School G. It is doubtful that even these decreases can be attributed to integration because the number of integrated pupils at those grade levels in those schools during the 1967-1968 school year were only three and four, respectively.

TABLE 20

MEAN STANFORD TOTAL READING TEST SCORES, RECEIVING PUPILS, BY RECEIVING SCHOOL, GRADE TWO, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Grade Equivalent	Number	Mean Raw Score	Mean Grade Equivalent
A	95	41.85	2.6	105	39.44	2.5
B	113	53.44	3.0	89	49.35	2.8
C	46	56.50	3.1	45	41.82	2.6
D	. .	. .	. .	39	48.08	2.8
E	130	43.22	2.6	96	41.03	2.6
F	113	39.90	2.5	106	38.43	2.5
G	65	41.62	2.6	64	40.50	2.5
H	79	41.32	2.6	69	44.62	2.7
I	95	40.48	2.6	107	38.96	2.5
J	44	39.93	2.5	48	40.25	2.5
K	47	40.87	2.6	38	45.76	2.7
L	73	55.92	3.1	76	49.91	2.9
Total	900	44.80	2.7	882	42.64	2.6

TABLE 21

MEAN STANFORD TOTAL READING TEST SCORES, RECEIVING PUPILS, BY RECEIVING SCHOOL, GRADE THREE, MAY 1967 AND 1968

School	May 1967			May 1968		
	Number	Mean Raw Score	Mean Grade Equivalent	Number	Mean Raw Score	Mean Grade Equivalent
A	94	65.98	3.6	85	60.25	3.3
B	112	69.75	3.8	82	74.84	4.1
C	38	64.97	3.5	49	59.84	3.3
D	. .	. .	. .	52	65.65	3.6
E	108	62.39	3.4	131	63.95	3.5
F	132	63.45	3.4	102	60.09	3.3
G	65	63.20	3.4	60	54.07	3.0
H	84	62.87	3.4	86	67.73	3.7
I	116	63.63	3.5	93	60.57	3.3
J	36	63.08	3.4	47	62.19	3.4
K	44	66.00	3.6	57	62.35	3.4
L	69	70.10	3.8	80	74.45	4.0
Total	898	65.01	3.5	924	64.12	3.5

TABLE 22

MEAN STANFORD TOTAL READING TEST SCORES, PUPILS AT NONRECEIVING SCHOOLS, BY SCHOOL, GRADES ONE, TWO, AND THREE, MAY 1967 AND 1968

School	Grade One				Grade Two				Grade Three			
	May 1967		May 1968		May 1967		May 1968		May 1967		May 1968	
	Mean Raw Score	Mean Grade Equiv.	Mean Raw Score	Mean Grade Equiv.	Mean Raw Score	Mean Grade Equiv.	Mean Raw Score	Mean Grade Equiv.	Mean Raw Score	Mean Grade Equiv.	Mean Raw Score	Mean Grade Equiv.
M	35	1.7	24	1.5	38	2.5	33	2.2	66	3.6	59	3.2
N	35	1.7	29	1.6	34	2.3	36	2.4	56	3.1	55	3.0
O	29	1.6	30	1.6	40	2.5	44	2.7	60	3.3	61	3.3
P	29	1.6	27	1.6	36	2.4	34	2.3	58	3.2	56	3.1
Q	36	1.7	32	1.6	42	2.6	42	2.6	63	3.4	56	3.1
R	33	1.6	31	1.6	34	2.3	37	2.4	60	3.3	53	3.0
S	33	1.6	36	1.7	37	2.4	40	2.5	59	3.2	51	2.9
T	31	1.6	34	1.7	38	2.5	37	2.4	55	3.0	60	3.3
Total	33	1.6	31	1.6	37	2.4	37	2.4	59	3.2	56	3.1

Achievement of Sixth Grade Pupils

Data for sixth grade pupils, presented in Tables 23 and 24, are similar to data for pupils in the primary grades except that a general downward trend among the receiving pupils may be somewhat more evident there than at the lower grades and that the differences between the average test performance of integrated and receiving pupils is greater at this level due to the cumulative effects of advantages and disadvantages and due to the greater variation possible on the test itself. Data in Table 2 have shown that the mean scores of pupils in schools that were not designated as receiving schools declined comparably to the scores of receiving pupils, indicating that this decline is probably due to factors exclusive of school desegregation.

It is interesting to note here that calculations revealed that, contrary to the results found in the primary grades, no correlation exists between the achievement test scores of integrated and receiving school pupils in the sixth grade. It is assumed that this is due to the fact that a "pattern of achievement" was developed long before these pupils entered desegregated schools and that the reversal of this pattern will take considerable time and effort. Although the Coleman research mentioned previously indicated that the influence of the student body background was greater than the influence of the individual's home background in upper grades and that the reverse was true of pupils in lower grades, the cumulative effects of the home background and school segregation were too great to be influenced significantly after only two years of attendance in integrated schools.

Conclusions

One to three years of attendance in desegregated schools seems to have had little, if any, effect on the measured achievement of either the integrated or the receiving pupils. Average reading test scores at several grade levels have decreased slightly; this seems, however, to be a district-wide trend that cannot be attributed to school desegregation. It is evident in schools which the integration policy did not affect; i.e., no additional minority group children were bused to them.

The average test performance of both integrated and receiving pupils is rather consistently higher at some schools than at others. Socioeconomic differences of school neighborhoods are believed to be primarily responsible for the differences among the receiving pupils; it appears that they may also be significantly responsible for the differences among integrated pupils. Statistically significant correlations between the average test scores of integrated and receiving pupils in Riverside support the findings of a nation-wide survey by the United States Office of Education that the social composition of a student body is more closely related to achievement than is any school factor. Information currently

TABLE 23

MEAN STANFORD TOTAL READING SCORES, INTEGRATED AND RECEIVING PUPILS, BY SCHOOL, GRADE SIX, OCTOBER 1966, 1967, AND 1968

School	Integrated Pupils						Receiving Pupils					
	October 1966		October 1967		October 1968		October 1966		October 1967		October 1968	
	Number	Mean Grade Equiv.	Number	Mean Grade Equiv.	Number	Mean Grade Equiv.	Number	Mean Grade Equiv.	Number	Mean Grade Equiv.	Number	Mean Grade Equiv.
A	7	4.0	14	4.9	12	4.6	82	6.0	83	5.7	91	5.6
B	10	4.7	14	5.2	9	4.8	139	6.7	103	6.5	96	6.7
C	3	. .	3	. .	5	4.5	36	5.9	44	5.6	26	5.4
D	. .	. .	4	. .	. .	. .	. .	. .	36	6.8	. .	. .
E	14	5.0	20	4.5	13	4.4	101	5.8	82	5.6	120	5.5
F	7	4.5	23	4.4	13	4.3	123	5.5	128	5.9	114	5.7
G	10	4.0	4	. .	9	4.4	69	5.5	67	5.8	55	5.8
H	6	4.4	13	4.1	12	4.4	80	6.5	99	6.3	87	5.6
I	13	3.9	10	3.8	14	3.9	100	5.9	118	5.8	127	5.6
J	8	5.6	10	4.6	10	4.2	56	6.1	48	6.1	51	5.9
K	5	4.3	6	4.7	2	. .	74	6.3	51	6.0	55	5.7
L	5	3.7	7	4.2	13	4.4	75	7.1	89	6.9	100	6.6
Total	88	4.4	128	4.5	112	4.4	935	6.1	948	6.1	982	5.9

TABLE 24

MEAN STANFORD TOTAL READING TEST SCORES, INTEGRATED PUPILS, BY RECEIVING SCHOOL AND SENDING AREA, GRADE SIX, OCTOBER 1966, 1967, AND 1968

School	Casa Blanca						Irving						Lowell					
	Oct. 1966		Oct. 1967		Oct. 1968		Oct. 1966		Oct. 1967		Oct. 1968		Oct. 1966		Oct. 1967		Oct. 1968	
	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.	No.	Mean Grade Equiv.
A	. .	. .	1	. .	2	. .	. .	. .	. .	. .	. .	. .	7	4.0	13	4.9	10	4.5
B	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	10	4.7	13	5.0	9	4.8
C	. .	. .	. .	. .	. .	. .	3	. .	3	. .	5	4.5	. .	. .	. .	. .	. .	. .
D	. .	. .	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
E	10	4.9	18	4.4	12	4.4	. .	. .	. .	. .	. .	. .	4	. .	2	. .	1	. .
F	7	4.5	13	4.6	10	4.0	. .	. .	. .	. .	. .	. .	. .	. .	10	4.3	3	. .
G	. .	. .	. .	. .	. .	. .	10	4.0	4	. .	9	4.4	. .	. .	. .	. .	. .	. .
H	. .	. .	3	. .	4	. .	1	. .	1	. .	. .	. .	5	4.3	9	4.1	8	4.3
I	. .	. .	4	. .	7	4.3	13	3.9	6	3.5	7	3.4	. .	. .	. .	. .	. .	. .
J	. .	. .	. .	. .	. .	. .	5	5.6	8	4.7	3	. .	3	. .	2	. .	7	4.0
K	. .	. .	. .	. .	. .	. .	5	4.3	5	4.6	2	. .	. .	. .	1	. .	. .	. .
L	. .	. .	2	. .	5	4.6	5	3.7	5	4.2	8	4.2	. .	. .	. .	. .	. .	. .
Total	17	4.8	46	4.4	40	4.4	42	4.2	32	4.4	34	4.2	29	4.7	50	4.7	38	4.5

available indicates that these correlations may become higher as the length of time in desegregated schools increases and as the pupils progress through school.

Research by Irwin Katz, cited earlier, indicates that school desegregation may have either favorable or unfavorable effects on achievement, depending upon the psychological atmosphere of the classroom. It is of paramount importance that each teacher exert every effort possible to create an atmosphere which will favorably influence the achievement of all pupils.

It cannot be assumed, however, that either the cumulative effects of the receiving pupils' home backgrounds or of classroom atmospheres which favorably influence self-concepts and attitudes toward academic achievement will advantageously affect all pupils or will raise the level of achievement of integrated pupils enough to close the gap between them and the receiving pupils. Desegregation must be accompanied by intense efforts to provide instruction which will help compensate for disadvantages accruing from home backgrounds and from previous attendance in segregated schools.

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APPENDIX B

Comparative Data
on
Raven's Progressive Matrices Test
and
The Peabody Picture Vocabulary Test:
An Outgrowth of the Riverside School Study

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DEPARTMENT OF RESEARCH AND EVALUATION
February, 1969

COMPARATIVE DATA ON RAVEN'S PROGRESSIVE MATRICES TEST AND THE PEABODY PICTURE VOCABULARY TEST: AN OUTGROWTH OF THE RIVERSIDE SCHOOL STUDY

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COMPARATIVE DATA ON RAVEN'S PROGRESSIVE MATRICES TEST AND THE PEABODY PICTURE VOCABULARY TEST: AN OUTGROWTH OF THE RIVERSIDE SCHOOL STUDY

The following data on the Raven Progressive Matrices Test and the Peabody Picture Vocabulary Test were collected from children in the Riverside School Study sample[1] during the spring of 1966. It was felt that comparison of these two tests, between ethnic and socioeconomic groups, would be of interest because the Raven has been considered to be more culture-free than tests (including the Peabody) usually administered in school situations.

Correlation Data

Correlation data for children according to sex, ethnic group, and socioeconomic level are presented, respectively, in Tables 1, 2, and 3. Groups were divided into four age brackets in order to mitigate the confounding effect of correlations between the two tests and age. Socioeconomic designation was determined according to Duncan's Socio-Economic Index for Occupations in the Detailed Classification of the Bureau of the Census: 1950. Generally speaking, Level 1 can be considered at the "lowest" socioeconomic level and Level 4 as the "highest." Level 1 includes children whose fathers (or other household head) were employed in such occupations as laborer, watchman, and gardener. Level 2 corresponds to occupations of deliveryman, retail salesman, and sheet metal worker; Level 3 to occupations such as draftsman, insurance adjuster, and wholesale salesman; and Level 4 to engineer, teacher, and accountant.[2] Children who could not be classified according to Duncan's Index were not included in Table 3. Table 3 will therefore have a smaller total number of children than either Tables 1 or 2.

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[1] The Riverside School Study sample includes minority children who were bussed to "receiving schools" and a random sample of Anglo-American children matched for age and grade. See the Orientation Manual: Riverside School Study, December, 1968, for further details.

[2] More specifically, according to Duncan's Index, Level 1 included occupations coded from 01-29; Level 2, 30-49; Level 3, 50-69; and Level 4, 70-90, 92, 93, 96.

TABLE 1

CORRELATIONS BETWEEN RAVEN AND PEABODY RAW SCORES ACCORDING TO SEX

Males	N	r
66-85 mos.	219	.52
86-105 mos.	214	.59
106-128 mos.	210	.57
129-178 mos.	204	.56
Total	847	.84
Females	**N**	**r**
66-85 mos.	220	.52
85-105 mos.	215	.74
106-128 mos.	206	.72
129-180 mos.	171	.63
Total	812	.79

All correlations between Raven and Peabody scores reported in Tables 1, 2, and 3 are statistically significant beyond the .05 level of confidence. This is partially due to the large number of scores available for analysis. For all children combined (N=1659), the correlation between Raven and Peabody scores was found to be .81. The variability of correlations between age groups in Tables 2 and 3 is fairly large, but no consistent pattern is in evidence. It is suspected that correlations between Raven and Peabody scores are inflated by common age variance and it would be instructive in the future to compute partial correlations between these tests with the age factor taken out.

TABLE 2

CORRELATIONS BETWEEN RAVEN AND PEABODY RAW SCORES ACCORDING TO ETHNIC GROUP

Anglo-American	N	r
66-85 mos.	164	.55
86-105 mos.	173	.24
106-128 mos.	155	.39
129-156 mos.	144	.30
Total	636	.69
Mexican-American	**N**	**r**
66-85 mos.	165	.39
86-105 mos.	140	.78
106-128 mos.	162	.34
129-180 mos.	170	.30
Total	637	.69
Negro	**N**	**r**
66-85 mos.	110	.23
86-105 mos.	116	.25
106-128 mos.	88	.45
129-158 mos.	72	.60
Total	386	.66

TABLE 3

CORRELATIONS BETWEEN RAVEN AND PEABODY RAW SCORES ACCORDING TO SOCIOECONOMIC LEVEL

Level 1	N	r
66-85 mos.	182	.42
86-105 mos.	167	.53
106-128 mos.	182	.66
129-180 mos.	182	.31
Total	713	.55
Level 2	N	r
66-85 mos.	69	.55
86-105 mos.	66	.42
106-128 mos.	65	.47
129-153 mos.	44	.47
Total	244	.67
Level 3	N	r
66-85 mos.	68	.56
86-105 mos.	54	.53
106-128 mos.	60	.59
129-156 mos.	42	.66
Total	224	.79
Level 4	N	r
66-85 mos.	42	.28
86-105 mos.	59	.62
106-128 mos.	34	.21
129-151 mos.	38	.49
Total	173	.69

Significance Tests

A prerequisite for computation of comparison tests between ethnic and sex groups is verification that these groups are distributed in equal proportions across all age levels. Chi square tests were employed to accomplish this task.[1] For a 2(sex) X 3(ethnic) test (according to the N of cases in each subdivision) the chi square value is .76 (P=.7). Sex would appear to be equally represented among all ethnic groups. With the sample divided into fourteen age brackets (see Table 10) the Age X Ethnic chi square value for males is 29.63 with 26 df (P=.30) and for females and Age X Ethnic chi square is 26.61 with 26 df (P=.50). It would seem, in addition, that children in each age bracket are equally represented among the three ethnic groups.

Table 4 presents the summary data of an analysis of variance for Age X Ethnic group repeated over two tests (Raven and Peabody). Four age divisions were used to match those of Table 2. It is seen that all F ratios are significant beyond the .01 level of confidence, with the ethnic and age components of the greatest importance. (The component for tests is irrelevant because raw scores were employed in the analysis.) Further analysis by means of Neuman-Keuls range tests, reported in Tables 5 and 6, demonstrates that Anglo-American pupils were consistently higher than Mexican-American and Negro pupils on both the Raven and Peabody tests and that Mexican-American pupils, as a total performed better than Negro pupils on the Raven and worse than Negro pupils on the Peabody. This interaction between Mexican-American and Negro pupils on the Raven and Peabody is statistically significant (as reported in Table 4; A X C) and can be seen in graphic form in Figure 1. Figure 2 presents a pictorial representation of the Raven and Peabody data from Tables 5 and 6. Standard scores (computed from the Riverside data) were employed in both graphs to facilitate comparison between the two tests.

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[1] A nonsignificant chi square denotes that variations in the sex-age-ethnic distributions are essentially random.

TABLE 4

ANALYSIS OF VARIANCE FOR COMPARISON OF ETHNIC GROUPS ON RAVEN TEST AND PEABODY TEST ACCORDING TO AGE LEVEL

Source	SS	df	MS	F[a]
Between Ss	395429	1658		
A (Ethnic)	71501	2	35750	4250
B (Age)	180220	3	60073	714
A X B	5192	6	865	10
error (b)	138516	1647	84	
Within Ss	2050464	1659		
C (Tests)	1930513	1		
A X C	20955	2	10478	256
B X C	28246	3	9415	230
A X B X C	3432	6	572	14
error (w)	67318	1647	50	

[a] All F values significant beyond the .01 level of confidence.

TABLE 5[a]

COMPARISON OF ETHNIC GROUPS ON RAVEN TEST

Age	Mean Raven Score		
	Anglo-American	Mexican-American	Negro
66-85 mos.	15.85	13.16	12.65
86-105 mos.	21.99	16.25	16.78
106-128 mos.	26.49	21.20	19.74
129- mos.	28.78	24.62	23.15
Total	23.44	18.94	17.74

[a]Means not connected by common underscore differ significantly beyond the .01 level of confidence. Number of scores in each subdivision corresponds to Table 2.

TABLE 6[a]

COMPARISON OF ETHNIC GROUPS ON PEABODY TEST

Age	Mean Peabody Score		
	Anglo-American	Mexican-American	Negro
66-85 mos.	61.66	48.48	53.21
86-105 mos.	72.36	58.74	62.13
106-128 mos.	82.97	65.53	71.11
129- mos.	94.92	73.65	78.62
Total	77.29	61.79	64.71

[a]Means not connected by common underscore differ significantly beyond the .01 level of confidence. Number of scores in each subdivision corresponds to Table 2.

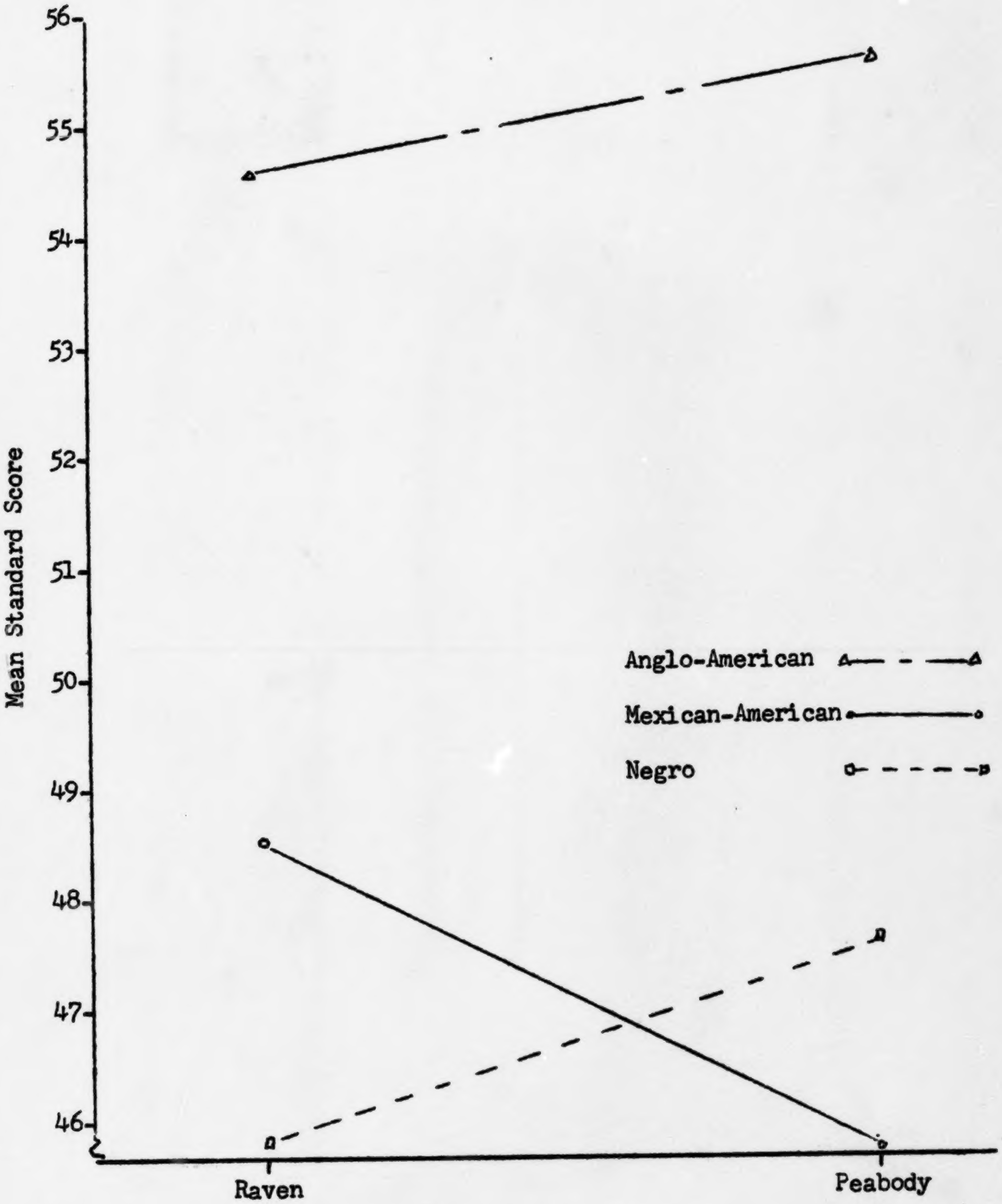

Fig. 1.--Comparison of ethnic groups on Raven and Peabody tests. Raven and Peabody raw scores converted to standard scores with mean=50 and S.D.=10.

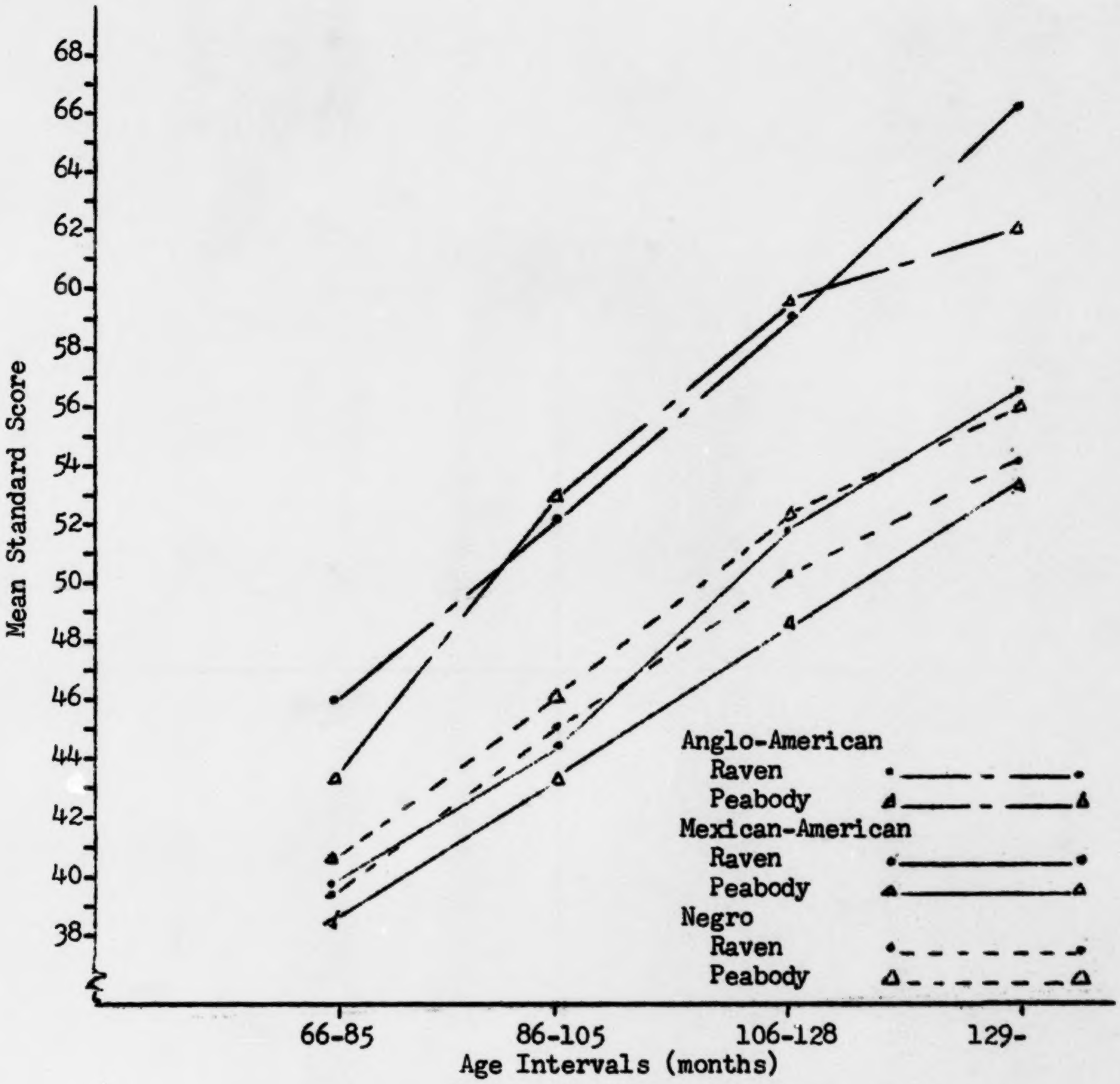

Fig. 2.--Comparison of ethnic groups on Raven and Peabody tests according to age. Raven and Peabody raw scores converted to standard scores with mean=50 and S.D.=10.

For the purpose of exploring the Raven data in greater detail, a 2(sex) X 14(age) X 3(ethnic group) analysis of variance was carried out. Fourteen age divisions were employed in order that a profile could later be drawn (Figure 3). The summary table for the analysis, seen in Table 7, shows that the sex, age, and ethnic group components for the Raven data all reached significance beyond the .01 level of confidence. The fact that the two-way interactions were not significant and the three-way interaction small, would testify that the main effects were not confounded by irregularities in the age-sex-ethnic distributions. The number of scores involved in Table 7 is somewhat smaller than the total sample because pupils over age 149 months were not included. This fact will account for small discrepencies between Table 5 and Table 8. Results of Neuman-Keuls range tests for the Raven data are presented in Tables 8 and 9. In Table 8 it is seen that mean scores for Anglo-American males and females were significantly higher than those for Mexican-American and Negro males and females and that Mexican-American males and females and Negro males scored higher than Negro females. With sexes combined, Anglo-Americans were highest, Mexican-Americans next highest, and Negroes lowest. When sexes are compared, the male mean is significantly greater than the female mean (20.35; 19.58). In Table 9 the progression of Raven scores (for all pupils combined) over fourteen age divisions can be seen with significant differences determined by means of the Neuman-Keuls test.

TABLE 7

ANALYSIS OF VARIANCE FOR RAVEN DATA

Source	SS	df	MS	F	P
A: Sex	203.6	1	203.6	11.1	<.01
B: Age	33760	13	2596.9	141.8	<.01
C: Ethnic	9527.6	2	4763.8	260	<.01
A X B	62	13	4.8	. .	
A X C	24.8	2	12.4	. .	
B X C	627	26	24.1	1.3	
A X B X C	2762.3	26	106.2	5.8	<.01
within	27716.1	1513	18.3		
Total	74683.4	1596	7730.1		

TABLE 8[a]

COMPARISON OF RAW MEAN SCORES ON RAVEN TEST

Anglo-American		Mexican-American		Negro	
Male N=318	Female N=305	Male N=307	Female N=288	Male N=185	Female N=194
23.21	22.62	18.58	18.26	18.01	16.78

Total

22.96	18.48	17.38

[a] Means not connected by common underscore differ significantly beyond the .01 level of confidence.

The complete Raven data are pictured in graphic form in Figure 3. Because of the nonsignificant A X C, A X B, and B X C interactions in the analysis of Table 8, it would seem that most of the variations seen in Figure 3 are of a random nature. The data can possibly be shown more clearly in smoothed form, shown in Figure 4.

The finding that mean scores of Anglo-American males and females were higher on both the Raven and Peabody tests than mean scores of Mexican-American and Negro males and females is not unexpected. It is of interest that Mexican-Americans had a higher mean than Negroes on the Raven and Negroes had a higher mean than Mexican-Americans on the Peabody. This may be at least partially accountable by the fact that the Peabody test is considered to be more verbal than the Raven and Mexican-American children are hindered in verbal performance (in English) by their bilingual background. It should be pointed out that the relatively low performance of Negroes on the Raven as well as the overall superiority of males (vs. females) on the Raven is largely due to the low mean Raven score of the Negro females. It is seen (Table 8) that the Raven mean for male Negroes is equivalent to that of Mexican-American males and females.

TABLE 9[a]

COMPARISON OF RAW MEAN RAVEN SCORES OVER AGE

N	Age Interval (months)	Mean Raw Score
121	66-71	11.83

119	72-77	13.69

152	78-83	15.28

156	84-89	17.51
104	90-95	18.77
127	96-101	18.06

123	102-107	20.66

102	108-113	22.25
134	114-119	22.51

89	120-125	24.47
99	126-131	25.17
99	132-137	24.71
90	138-143	26.12
82	144-149	27.52

[a] Means separated by double-space differ significantly beyond .05 level of confidence. Means separated by double-space with dotted line differ significantly beyond .01 level of confidence.

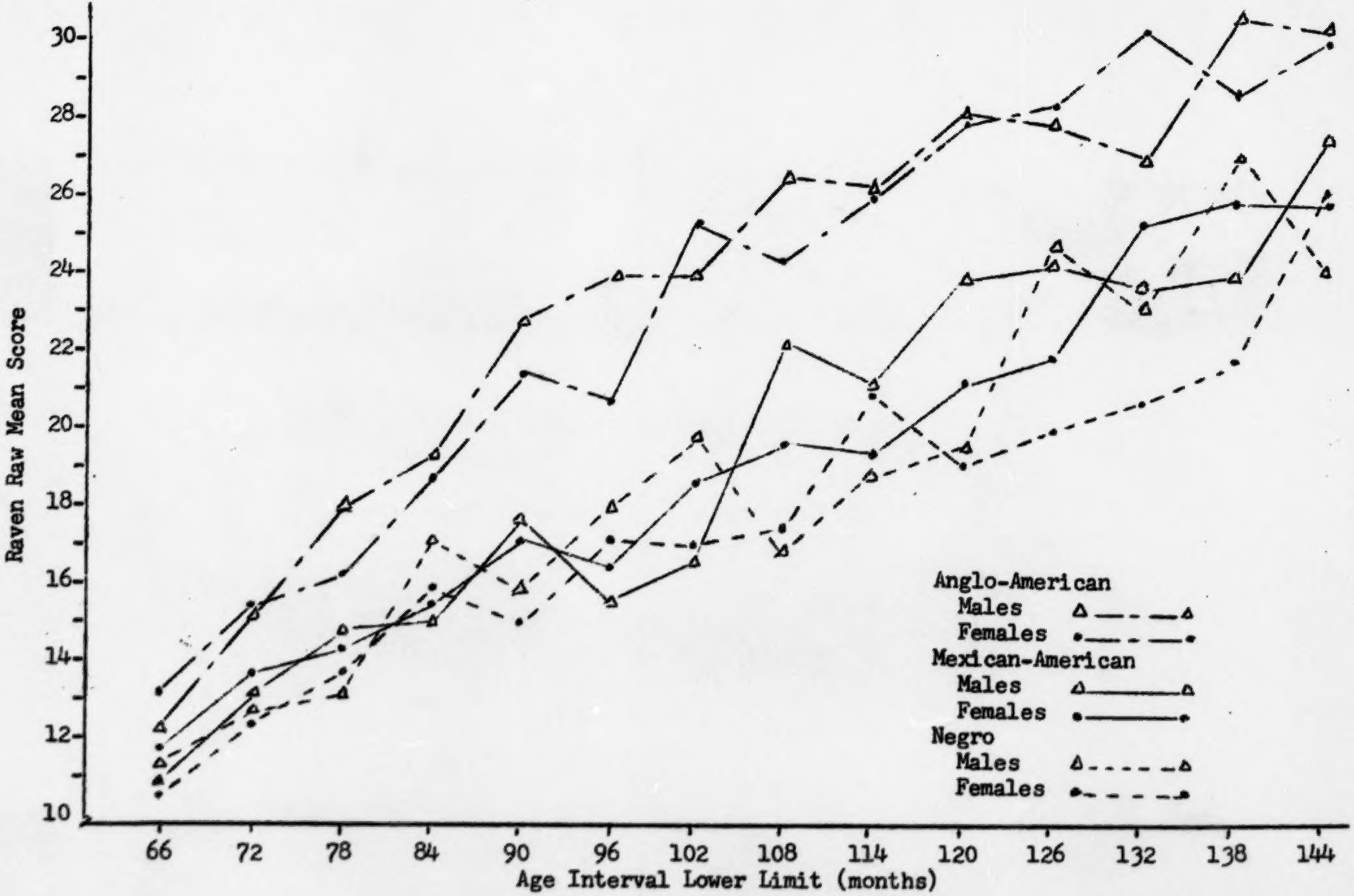

Fig. 3.--Mean Raven raw scores for age intervals.

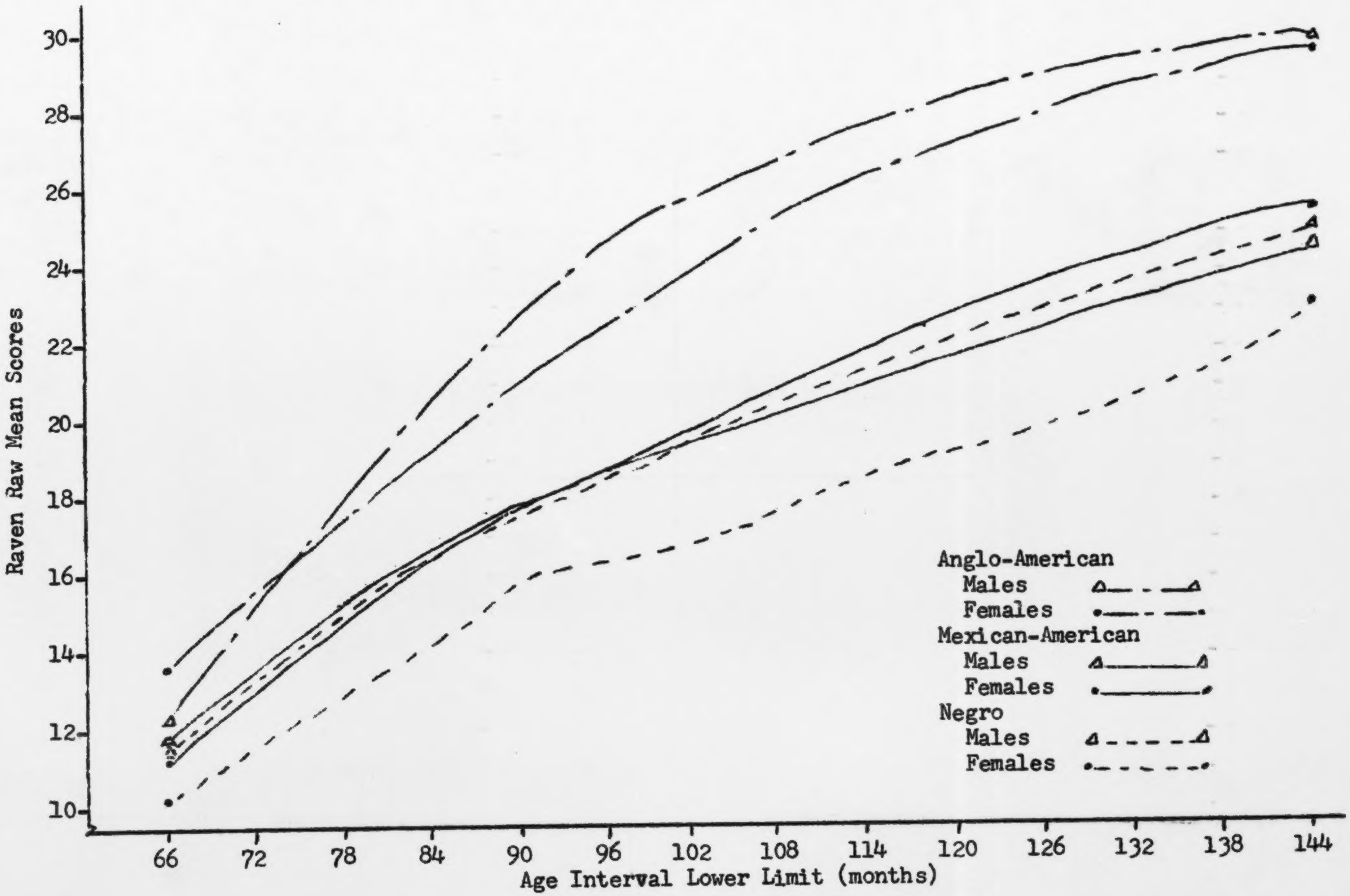

Fig. 4.--Smoothed curve of Raven raw scores for age intervals.

Summary

1. Pearson correlations between Raven and Peabody scores for males and females (total Riverside sample; N=1659), respectively, are .84 and .79.

2. Pearson correlations between Raven and Peabody scores for Anglo-American, Mexican-American, and Negro pupils of the Riverside sample are .69, .69, and .66.

3. Pearson correlations between Raven and Peabody scores for pupils of the Riverside study according to socioeconomic level (Level 1 through Level 4) are .55, .67, .79, and .69.

4. Pearson correlation between Raven and Peabody scores for the Riverside sample as a total is .81.

5. The variability of Pearson correlations between Raven and Peabody scores within age divisions is high, but no consistent pattern is in evidence.

6. Anglo-American males and females scored consistently higher on both the Raven and Peabody than Mexican-American and Negro males and females.

7. With sexes combined, Mexican-Americans had a higher mean score than Negroes on the Raven and Negroes had a higher mean than Mexican-Americans on the Peabody.

8. For ethnic groups combined, the Raven mean was higher for males than for females.

9. Mexican-American males and females and Negro males scored significantly higher than Negro females on the Raven.

10. Raven scores were found to be strongly related to age.

APPENDIX C

Proposal for Educational Personnel

Development Grant

Pilot Project

Preparation of Reading Content Specialists

for the Junior High School

AVAILABLE FROM

Harry Singer

Project Director